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COTTON

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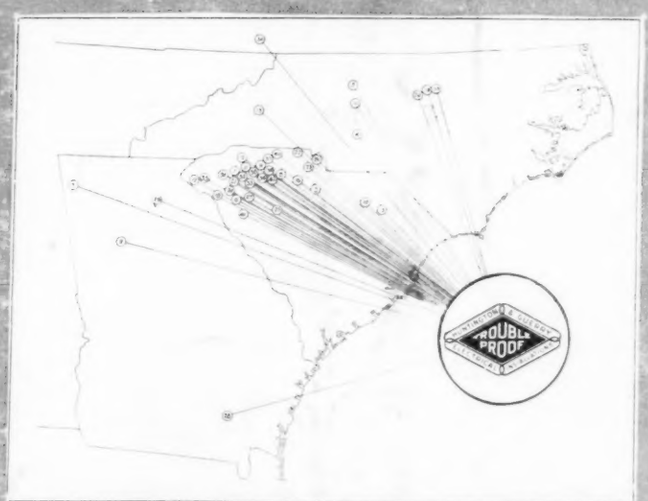

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(See Welding Apparatus.)

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Bird-Wilcox Co.
Commercial Acetylene Supply Co.

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Allis-Chalmers Mfg. Co.

Air Washers.
Carrier Eng. Corp.
New York Blower Co.
Parks-Cramer Co.
Sturtevant Co., B F.

Air Conditioning Systems.
(See Humidifying Apparatus.)

Albone.
Roessler & Hasslacher Chemical Co.

Alkalies.
(See Dyestuffs and Chemicals.)

Aniline Colors.
(See Dyestuffs and Chemicals.)

Anti-Chlorine.
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Aprons—Rub.
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Smith & Furbush Machine Co.
Graton & Knight Mfg. Co.

Architects and Engineers.
Belmont Iron Works.
Hoffman & Co., Leon
Huntington & Guerry, Inc.
Lockwood, Greene & Co.
Sirrine, J. E.

Ash Handling Machinery.
American Steam Conveyor Corp.
Hunt Co., C. W.
Link-Belt Company.

Asphalt Slate Shingles.
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Atlanta Audit Co., Inc.

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Automatic Loom Attachments.
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New Departure Mfg. Co.
Transmission Ball Bearing Co., Inc.
U. S. Ball Bearing Co.

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Lovingood Co.
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Draper Corporation.
Economy Baler Co.
Saco-Lowell Shops.
Seeger Machine Tool Co.

Baling Presses.
Butterworth & Sons Co., H. W.
Economy Baler Co.
Lovingood C.
Philadelphia Drying Mchry. Co.
Seeger Machine Tool Co.
Smith & Furbush Mch. Co.

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Seydel Mfg. Co.

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Seydel Mfg. Co.

Banding Straps and Buckles.
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Lovingood Co.
Signode System, Inc.

Banks.
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Textile Banking Co., Inc.

Barometers.
Taylor Instrument Co.

Baskets—Mill.
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Cocker Mchry. & Foundry Co.

Beam Heads (Steel).
Mossberg Co., Frank

Beaming and Warping Mchry.
(See Warpers and Warping Machinery.)

Bearings.
Hyatt Roller Bearing Co.
New Departure Mfg. Co.
Transmission Ball Bearing Co.
U. S. Ball Bearing Co.

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Graton & Knight Mfg. Co.
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Ladew & Co., Inc., Edw. R.
Stanley Belting Corp.
Williams & Co., I. B.

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Link-Belt Company.
Morse Chain Co.

Belting—Rope.
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Belt Conveyors.
Link-Belt Company.
Morse Chain Co.
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Belt Tighteners.
Link-Belt Company.
Williams & Sons, I. B.

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Dow Iron & Wire Works.
American Playground Device Co.
Hill-Standard Co.
Manufacturers Equip. & Eng. Co.

Bleacheries.
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Bleaching Kiers.
Butterworth & Sons Co. H. W.
Philadelphia Drying Mchy. Co.
Textile Finishing Machinery Co, The

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Bleaching Materials.
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Atlantic Dyestuff Co.
Barrett Co.
Bosson & Lane.
Dicks-David Co., Inc.
Born, Scrymser Co.
Du Pont de Nemours & Co., E. I.
Electro Bleaching Gas Co
Electric Smelting & Alum. Co.
Grasselli Chemical Co.
Hemingway, Inc., Frank
Kali Mfg. Co.
Klipstein & Co., A.
Levinstein & Co., Inc.
National Aniline & Chemical Co.
Newport Chemical Works, Inc.
Roessler & Hasslacher Chemical Co.
Seydel Mfg. Co.
Sonneborn Sons, Inc., L.
Wolf & Co., Jacques
Zavon, Inc.

Blowers and Blower Systems.
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General Electric Co.
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Sturtevant Co., B. F.
Westinghouse Elec. & Mfg. Co.

Boards—Form.
Paramount Hosiery Form Drying Co.
Pearson, Jos. T.

Bobbins.
Brown Co., The David
Draper Corporation.
Greenville Spool & Mfg. Co.
Jordan Mfg. Co.
Shambow Shuttle Co.
Whitin Machine Works.

Boilers.
Carpenter Co., Geo. B.
Lombard Iron Works & Supply Co.
Schofield's Co., J. S.
Toomey, Frank
Walsh & Weidner Boiler Co.

Boiler Feed Water Purification.
Permutit Co.
Refinite Co.
Scaife & Sons, Wm. B.

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Lunkenheimer Co.

Boiler Graphite.
Jos. Dixon Crucible Co.

Box Strapping and Tie Buckles.
Acme Steel Goods Co.
Draper Corporation.
Lovingood Co.
Signode System, Inc.

Boxes—Mill.
Keystone Fibre Co.
Lane & Bro.
Leatheroid Sales Co.
Rogers Fibre Co.
Standard Fibre Co.

Braids.
(See Tapes.)

Brokers (Cotton).
Beer, H. & B.

Brushes—Mill.
Felton Brush Co., D. D.
Felton, S. A. & Son Co.

Brushes—Commutator.
Dixon Crucible Co., Jos.
General Elec. Co.
Westinghouse Elec. & Mfg. Co.

Buckets & Pails—Mill.
Keystone Fibre Co.
Leatheroid Sales Co.
Rogers Fibre Co.
Standard Fibre Co.

Buckets—Elevator and Grab.
Link-Belt Company.

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Building Contractors.
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Buildings—Portable.
Aladdin Co.
Lockwood, Greene & Co.

Building Material.
Aladdin Co.
Anchor Post Iron Works.
Belmont Iron Works.
Carpenter Co., Geo. B.
Barrett Co., The
Detroit Graphite Co.
Dufur & Co.
Lockwood, Greene & Co.
Nashville Hardwood Flooring Co.
Page Steel & Wire Co.
Peaslee-Gaulbert Co., Inc.

Burr Pickers.
Sargent's, C. G., Sons.
Smith & Furbush Machine Co

Bushings.
Southern Spindle & Flyer Co.

Calenders.
Textile Finishing Mchy. Co.

Calender Rolls.
Roy & Son, B. S.

Calling System (Inter Telephone).
Carter Elec. Co.
Collins, J. D.

Cans—Roving.
Keystone Fibre Co.
Leatheroid Sales Co
Rogers Fibre Co.
Standard Fibre Co.

Cars and Trucks—Fibre.
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Carbonizing Machines.
Philadelphia Drying Machy. Co.
Phila. Textile Mchy. Co.
Sargents Sons & Co., C. G.
Textile Finishing Machinery Co., The

Carding Machinery
Howard & Bullough.
Saco-Lowell Shops.
Smith & Furbush Mach. Co.
Southern Spindle & Flyer Co.
Whitin Machine Works.

Card Clothing.
Howard & Bullough.
Saco-Lowell Shops.
Southern Spindle & Flyer Co.
Whitin Machine Works.

Card Feeds.
Schofield, Wm. Co.
Smith & Furbush Mach Co.
Whitin Machine Co.

Card Grinding Machinery.
Roy & Son Co., B. S.
Smith & Furbush Mch. Co.
Whitin Machine Works.

Carpet Machinery.
Butterworth, H. W., & Sons Co.
Crompton & Knowles Loom Wks.
Philadelphia Drying Machry. Co.
Phila. Textile Machy. Co.
Schofield, Wm. Co.
Smith & Furbush Mach. Co.
Textile Finishing Machy. Co., The

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(See Aprons.)

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(See Bleaching Materials.)

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(See Belting—Chain Link.)

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Morse Chain Co.

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(See Stamps, Stencils, etc.)

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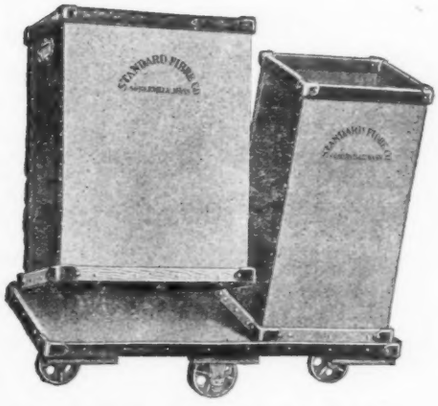

We are pleased at all times to assist in any special problems relating to fibre mill receptacles

STANDARD FIBRE CO.

25 Miller St., Somerville, Mass.

Private Cotton Information

Our Bureau of Information has never failed. 1919 will be very unusual. Guessing in the Cotton business will not pay. Our service is well known and reliable. Direct from the Cotton Ginners. Daily and weekly services by wire and mail.

The Ginner's Association, Inc.

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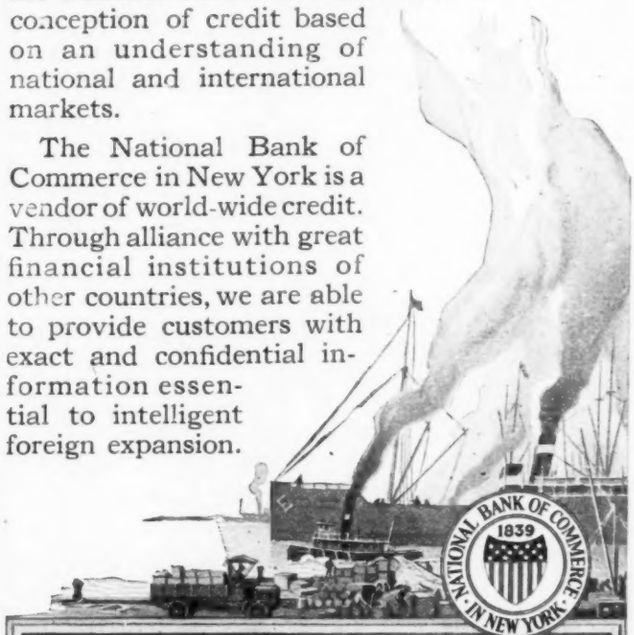
The National Bank of Commerce in New York is a vendor of world-wide credit. Through alliance with great financial institutions of other countries, we are able to provide customers with exact and confidential information essential to intelligent foreign expansion.



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Capital Surplus & Undivided Profits Over Fifty Million Dollars

BUYERS' INDEX—Continued.

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(See Dyestuffs and Chemicals.)

Chlorine Gas.
Electro Bleaching Gas Co.

Clocks (Hank, Etc).
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Clocks (Time)
International Time Recorder Co.

Closets (Water).
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Cloth Cutters.
Firsching, J. A.
Wildman Mfg. Co.

Cloth Balers.
(See Baling Presses.)

Cloth Room Machinery.
Butterworth, H. W. & Sons Co.
Firsching, J. A.
Saco-Lowell Shops.
Southern Novelty Co.
Textile Finishing Machinery Co.
Wildman Mfg. Co.

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Reliance Machine Works.

Cloth Tubes.
Southern Novelty Co.

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Clutches (Friction).
American Pulley Co.
Cresson-Morris Co.
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Link-Belt Company.
Transmission Ball Bearing Co

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Link-Belt Company.

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Compresses (Cotton).
Bridge & Co., Ltd., David

Compression (High Density).
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Compressors, Air.
Allis-Chalmers Mfg. Co.
General Electric Co.
Seeger Machine Tool Co.

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Seeger Machine Tool Co.

Connectors (Frankel Solderless).
Westinghouse Elec. & Mfg. Co.

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Taylor Instrument Co.

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American Supply Co.
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Hunt Co., C. W.
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Morse Chain Co.
Phila. Drying Machinery Co.
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Smith & Furbush Machine Co.
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Textile Finishing Machinery Co., The

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Carpenter Co., Geo. B.
Cocker Mch. & Foundry Co.
Crompton & Knowles Loom Wks.
Delahunty Dyeing Machine Co.
Draper Corporation.
Firsching, J. A.
Fletcher Works.
Greenville Spool & Mfg. Co.
Howard & Bullough.
Phila. Drying Mchy. Co.
Phila. Textile Machy. Co.
Sargent's Sons, Corp., C. G.
Saco-Lowell Shops.
Schaum & Uhlinger.
Schofield Co., Wm.
Smith & Furbush Mach. Co.
Stafford Co.
Steel Heddle Mfg. Co.
Terrell Machine Co.
Textile Finishing Machinery Co.
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Whitin Machine Works.
Whitinsville Spinning Ring Co.

Cotton Tape Loom.
Fletcher Works.
Schaum & Uhlinger.

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Dictaphone Co.

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Crompton & Knowles Loom Wks.
Whitin Machine Works.

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Acme Steel Goods Co.
Tagliabue Mfg. Co., C. J.

Draft Gauges and Thermometers.
Taylor Instrument Co.

Drawing Frames.
Howard & Bullough.
Saco-Lowell Shops.
Whitin Machine Works.

Drills (Electric).
(See Electric Machinery.)

Drinking Fountains.
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Drop Wires.
Steel Heddle Mfg. Co.

Drying Apparatus.
New York Blower Co.

Drying Forms (Hosiery).
Paramount Hosiery Form Drying Co.
Pearson, Jos. T.

Drying Machinery.
American Laundry Mchry. Co.
Butterworth, H. W. & Sons Co.
Phila. Textile Mchry. Co.
Sargent's Sons Corp., C. G.
Textile Finishing Machinery Co., The

Dust Collectors.
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Dusting Machinery.
Schofield Co., Wm.
Smith & Furbush Mach. Co.

Dyeing, Bleaching, Finishing and Printing Machinery.
American Laundry Mchry. Co.
Butterworth & Son Co., H. W.
Philadelphia Textile Mchy. Co.
Cocker Mch. & Foundry Co.
Electro Bleaching Gas Co.
Firsching, J. A.
Fletcher Works.
Permutit Co.
Phila. Drying Machinery Co.
Phila. Textile Machy Co.
Refinite Co.
Reliance Machine Works.
Schaum & Uhlinger.
Textile Finishing Machinery Co., The
Tolhurst Machine Works.

Dye Sticks.
Phila. Drying Machinery Co.

Dyestuffs and Chemicals.
Arabol Mfg. Co.
Atlantic Dyestuff Co.
Barrett Co.
Borne, Scrymser Co.
Bosson & Lane.
Du Pont de Nemours & Co., E. I.
Electro Bleaching Gas Co.
Grasselli Chemical Co.
Hemingway, Inc., Frank
Kali Mfg. Co.
Klipstein & Co., A.
Levinstein & Co., Inc.
Lewis, John D.
Metz & Co., H. A.
National Aniline & Chemcial Co.
Newport Chemical Works, Inc.
Roessler & Hasslacher Chemical Co.
Seydel Mfg. Co.
Sherwin-Williams Co.
Sonneborn Sons, Inc., L.
Wolf & Co., Jacques.
Zavon, Inc.

Electric Dynamos and Motors.
(See Motors and Generators.)

Electric Fans.
(See Fans—Electric.)

Electric Lamps.
(See Lamps.)

Electric Lamp Guards.
Flexible Steel Lacing Co.

Electrical Engineers and Contractors.
Huntington & Guerry, Inc.

Electrical Machinery and Supplies.
Allis-Chalmers Mfg. Co.
Carpenter Co., Geo. B.
Carter Electric Co.
Economy Fuse & Mfg. Co.
General Electric Co.
Seeger Machine Tool Co.
Snow & Co., E. W.
Walsh & Weidner Boiler Co.
Westinghouse Electric & Mfg. Co.

Electric Tractors and Trucks.
Baker, R. & L. Co.
Cowan Truck Co.
Collins, J. D.
Elwell-Parker Elec. Co.
Hunt Co., C. W.

Elevators.
Collins J. D.
Hunt Co., C. W.
Link-Belt Company.
Seeger Machine Tool Co.

Enamel—Mill White.
(See Paint—Mill White.)

Engineers (Mill).
(See Architects.)

Engines—Oil, Gas and Gasoline.
Carpenter Co., Geo. B.
Seeger Machine Tool Co.

Engines—Steam.
Allis-Chalmers Mfg. Co.
Carpenter Co., Geo. B.
Lombard Iron Works & Supply Co.
Schofield's Sons Co., J. S.
Seeger Machine Tool Co.
Toomey, Frank
Walsh & Weidner Boiler Co.

Engine Appliances—Oil and Steam.
Carpenter Co., Geo. B.
Jenkins Bros.
Lunkenheimer Co.

Engine Room Supplies.
Carpenter Co., Geo. B.
Goodyear Tire & Rubber Co.
Jenkins Bros.
Lunkenheimer Co.
Graton & Knight Mfg. Co.

Extractors—Hydro.
American Laundry Mchry Co.
Fletcher Works.
Schaum & Uhlinger.
Tolhurst Machine Works.

Fans—Electric.
Allis-Chalmers Mfg. Co.
Carter Electric Co.
General Electric Co.
Howard & Morse
Westinghouse Elec. & Mfg. Co.

Fans—Conveying, Power and Exhaust.
(See Blowers and Blowing Systems.)

Feed Water Purifiers.
(See Water Softeners.)

Felting Machinery.
Smith & Furbush Mach. Co.

Fence—Steel and Iron.
Anchor Post Iron Works.
Belmont Iron Works.
Cyclone Fence Co.
Page Steel & Wire Co.

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Keystone Fibre Co.
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Filters—Water.
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Finishing.
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Finishing and Sizing Materials.
Arabol Mfg. Co.
Borne, Schrymser Co.
Bosson & Lane.
Corn Products Refining Co.
Du Pont de Nemours & Co., E. I.
Electric Smelting & Alum. Co.
Grasselli Chemical Co.
Hemingway, Inc., Frank
Kali Mfg. Co.
Klipstein & Co., A.
Levinstein & Co., Inc.
Newport Chemical Works, Inc.
Metz & Co., H. A.
National Aniline & Chemical Co.
Roessler & Hasslacher Chemical Co.
Seydel Mfg. Co.
Sherwin-Williams Co.
Sonneborn Sons, Inc., L.
Warren Soap Mfg. Co.
Wolf & Co., Jacques
Zavon, Inc.

Fire Escapes (Spiral).
Collins, J. D.

Fire Hose.
(See Hose—Fire.)

Fire Protecting Paint.
(See Paint—Fireproof.)

First Aid Room Equipment.
(See Hospital Equipment.)

Flooring (Hardwood).
Nashville Hardwood Flooring Co.

Floor Scrubbing Macine.
American Scrubbing Machine Co.

Fluted Rolls.
Howard & Bullough.
Saco-Lowell Shops.
Schofield's Sons Co., J. S.
Smith & Furbush Machine Co.
Southern Spindle & Flyer Co.
Whitin Machine Works.

Flyers.
Howard & Bullough.
Saco-Lowell Shops.
Southern Spindle & Flyer Co.
Whitin Machine Works.

Fountains (Drinking).
Manufacturers Equip. & Eng. Co.
Puro Sanitary Drinking Fountain Co.

Friction Clutches.
(See Clutches—Friction.)

Fuses.
(See Elec. Mchy. and Supplies.)

Garnett Machines.
Roy Son Co., B. S.
Smith & Furbush Mach. Co.

Gas Engines.
(See Engines—Gas.)

Gaskets.
Goodyear Tire & Rubber Co.
Graton & Knight Mfg. Co.

Gauge Cocks.
Lunkenheimer Co.

Gauges—Draft.
Taylor Instrument Co.

Gauges—Mercury Column Vacuum
Taylor Instrument Co.

Gauges—Oil.
Lunkenheimer Co.

Gauges—Water.
Lunkenheimer Co.

Gears—Silent.
General Electric Co.
Link-Belt Co.
Morse Chain Co.

Gear Cutters.
Cresson-Morris Co.
Whiton Mch. Co., D. E.

Gear Pullers.
Greb Co., Inc.

Generators—Electric.
(See Motors and Generators.)

Ginning Information.
Ginners Association.

Graphite—Products.
Dixon Crucible Co., Jos.

Grates—Shaking.
Lombard Fdy. & Mch. Co.

Grease.
(See Lubricants.)

Grease Cups.
(See Lubricators.)

Grinders—Card, Cylinder Roll, Napper and Garnett.
(See Card Grinding Machinery.)

Guards (Elec. Lamp.
Flexible Steel Lacing Co.

Guides (Thread).
Mitchell-Bissell Co.
Palmer Co., I. E

Gums.
(See Finishing and Sizing Materials.)

Hangers.
(See Shafting and Hangers.)

Hardwood.
Nashville Hardwood Flooring Co.

Harness—Loom.
American Supply Co.
Crompton & Knowles Loom Wks.
Emmons Loom Harness Co.
Garland Mfg. Co.
Electro Bleaching Gas. Co.

Heaters (Water).
Manufacturers Equip. & Eng. Co.

Heating and Ventilating Apparatus.
(See Ventilating Apparatus.)

Heddles.
Crompton & Knowles Loom Wks.
Draper Corporation.
Steel Heddle Mfg. Co.

Heddle Frames.
Crompton & Knowles Loom Wks.
Steel Heddle Mfg. Co.

Hoists.
Link-Belt Company.
Morse Chain Co.
Pasco Tool Co.
Seeger Machine Tool Co.

Hose—Fire.
Collins, J. D.
Goodyear Tire & Rubber Co.

Hosiery Finishing Boards.
(See Boards.)

Hosiery Forms.
(See Drying Forms.)

Hosiery Yarns.
(See Yarn Manufacturers.)

Hospital Equipment.
Thomas Co., F. H.

Hotels.
DeSoto.
Marquette.
Martinique.
Sinton.
Tuller.

Houses (Ready-Made)
Aladdin Co., The

Humidifying Apparatus.
Carrier Eng. Corp.
New York Blower Co.
Parks-Cramer Co.
Sturtevant Co., B. F.

Hydraulic Turbines.
(See Turbines Steam.)

Hydro Extractors.
(See Extractors.)

Hydrometers.
Taylor Instrument Co.

Hygrometers.
Taylor Instrument Co.

Hygrodeiks.
Taylor Instrument Co.

Indicating and Recording Instruments.
Taylor Instrument Co.
Tagliabue Mfg. Co., C. J

Indigo.
(See Dyestuffs and Chemicals.)

Injectors.
Lunkenheimer Co.

Ink—Stencil and Marking.
Atlanta Stamp & Stencil Wks.
Bradley Mfg. Co., A. J.
Lovingood Co.
National Marking Machine Co.

Insurance.
Miller's Indemnity Underwriters.

Iron Work—Ornamental.
Anchor Post Iron Works.
Belmont Iron Works.
Cyclone Fence Co
Dow Wire & Iron Works.
Dufur & Co.
Howard & Morse.
Lombard Iron Works & Supply Co.
Page Steel & Wire Co.

Jacks.
Adams Co., Geo. H.

Jacquards.
Crompton & Knowles Loom Wks.

Jute Bagging Machines.
Smith & Furbush Mach. Co.

Kettles—Size.
(See Size Kettles.)

Kettles—Soda
Lombard Iron Works & Sup. Co.
Manufacturers Equip. & Eng. Co.

Kiers.
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Knit Goods.
(See Cotton Cloth Commission Merchants and Dealers.)

Knit Goods Washers.
(See Washers—Cloth.)

Knitting Machinery and Supplies.
Adams Co., Geo. H.
Boss Knitting Mach. Works.
Brinton Co., H.
General Machine Works.
Hemphill Mfg. Co.
Nye & Tredick Co.
Scott & Williams.
Smith & Furbush Mach. Co.
Wildman Mfg. Co.

Lamps—Incandescent and Arc.
Boston Economy Lamp Div.
Carter Electric Co.
General Elec. Co.
Westinghouse Lamp Co.

Lamp Guards (Key Locking).
Flexible Steel Lacing Co.

Lamp Reflectors.
Carter Elec. Co.
Ivanhoe-Regent Works.

Landscape Architects.
(See Village Architects.)

Lappers.
Saco-Lowell Shops.
Smith & Furbush Mach. Co.
Whitin Machine Works.

Laundry Machinery.
American Laundry Mchry Co.
Fletcher Works.
Schaum & Uhlinger.
Tolhurst Machine Works.

Leather Belting.
(See Belting.)

Leather Specialties.
American Supply Co.
Graton & Knight Mfg. Co.
Ladew & Co., Inc., Edw. R.
Williams & Sons, I. B.

Linen Yarns.
(See Yarns——Linen.)

Link Belting.
(See Belting—Link.)

Liquid Chlorine.
(See Chlorine.)

Loaders—Wagon and Trucks.
Link-Belt Company.

Lockers (Metal).
Collins, J. D.
Manufacturers Equip. & Eng. Co.

Logwood Extract.
(See Dyestuffs and Chemicals.)

Looms.
Crompton & Knowles Loom Wks.
Draper Corporation.
Fletcher Works.
Saco-Lowell Shops.
Schaum & Uhlinger.
Schofield Wm. & Co.
Stafford Co., The
Whitin Machine Works.

Loom Attachments (Auto).
Draper Corp.

Lubricants.
Dixon, Jos., Crucible Co.
Kellogg & Co., E. H.
N. Y. & N. J. Lubricant Co.
Swan & Finch Co.

Lubricators.
Lunkenheimer Co.
N. Y. & N. J. Lubricant Co.

Lug Straps.
(See Straps—Lug.)

Lumber.
Nashville Hardwood Flooring Co.

Marking Pots, Stencils, Inks, Etc.
Atlanta Stamp & Stencil Wks.
Bradley Mfg. Co., A. J.
Lovingood Co.
National Marking Machine Co.

Marking Machines.
National Marking Machine Co.

Mercerized Yarns.
(See Yarns Mercerized.)

Mercerizing Machinery.
Butterworth H. W. & Sons Co.
Textile Finishing Machinery Co

Metal Ceilings, Etc.
Belmont Iron Works.
Lupton's Sons Co., David.

Metals (Perforated)
(See Screens and Sieves.)

Metal Workers—Sheet.
Belmont Iron Works.
Lombard Iron Works & Supply Co.
Howard & Morse.
Page Steel & Wire Co.

Meters—Flow, Air, Gas, Electric, Steam, Etc.
Allis-Chalmers Mfg. So.
Carter Electric Co.
General Electric Co.
Tagliabue Mfg. Co., C. J.
Taylor Instrument Co.
Westinghouse Elec. & Mfg. Co.

Meters (Revolution).
Taylor Instrument Co.

Mill Baskets and Boxes.
(See Boxes—Mill.)

Mill Engineer.
(See Architects and Engineers.)

Mill Villages.
(See Villages.)

Mill White Paint.
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Motors and Generators—Electric.
Allis-Chalmers Mfg. Co.
Carter Electric Co.
General Electric Co.
Seeger Machine Tool Co.
Westinghouse Elec. & Mfg. Co.

Mule Stands.
Transmission Ball Bearing Co.

Nails—Cement Coated.
Lovingood Co.

Nappers.
Roy & Son Co., B. S.

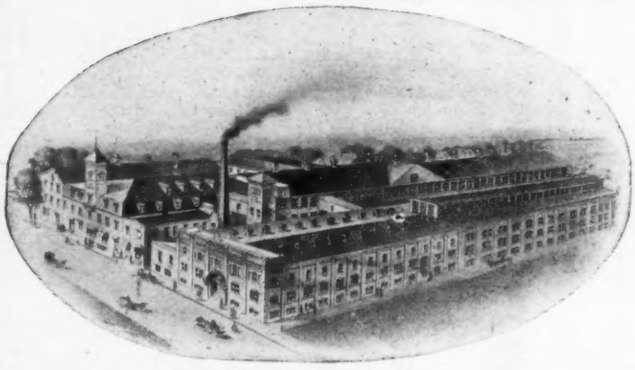
Needles—Latch.
Adams Co., Geo. H.

Oils—Finishing.
(See Finishing and Sizing Materials.)

Oils—Lubricating.
(See Lubricants.)

Oil Cups.
(See Lubricators.)

Oil Paper.
Bradley Mfg. Co., A. J.



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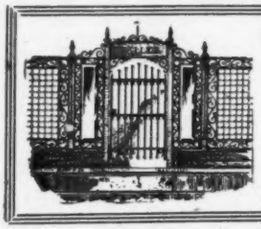

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Whitin Machine Works.

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Phila. Drying Machinery Co.

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Bird Wilcox Co.
Commercial Acetylene Supply Co.

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Goodyear Tire & Rubber Co.
Graton & Knight Mfg. Co.
Jenkins Bros.

Paint.
Barrett Co., The.
Chaffee, Thos. K.
Detroit Graphite Co.
Du Pont de Nemours & Co., E. I.
Peaslee-Gaulbert Co., Inc.
Sherwin-Williams Co.
Wadsworth, Howland & Co.

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Detroit Graphite Co.
Du Pont de Nemours & Co., E. I.
Sherwin-Williams Co.
Peaslee-Gaulbert Co., Inc.
Wadsworth, Howland & Co.

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Chaffee Thos. K.
Detroit Graphite Co.
Du Pont de Nemours & Co., E. I.
Peaslee-Gaulbert Co., Inc.
Sherwin-Williams Co.
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Perforated Metal.
(See Screens and Sieves.)

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Roessler & Hasslacher Chemical Co.

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Dictaphone Co.

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Smith & Furbush Mach. Co.

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Garland Mfg. Co.

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Howard & Bullough, Am. Machine Co.
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Schofield Co., Wm.
Smith & Furbush Mach. Co.
Whitin Machine Works.

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Lunkenheimer Co.

Pipe Threading & Cutting Machines.
Seeger Machine Tool Co.

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American Playground Device Co.
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Hill-Standard Co.

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Goodyear Tire & Rubber Co.
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Kelly Co., Henry C.
Ladew & Co., Inc., Edw. R.
Link-Belt Company.
Morse Chain Co.
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Seeger Machine Tool Co.
Stanley Belting Corp.
Transmission Ball Bearing Co.
U. S. Ball Bearing Co.
Westinghouse Elec. & Mfg. Co.
Williams & Sons, I. B.

Presses.
American Laundry Machnry. Co.
Bridge & Co., Ltd., David
Butterworth & Sons Co., H. W.
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Phila. Drying Machine Co.
Reliance Machine Works.
Seeger Machine Tool Co.
Smith & Furbush Mch. Co.
Textile Finishing Machinery Co. The

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Cresson-Morris Co.
Dodge Sales & Eng. Co.
Link-Belt Company.
Seeger Machine Tool Co.
Transmission Ball Bearing Co.

Pulley Covering.
Goodyear Tire & Rubber Co.
Stanley Belting Corp.
Williams & Sons, I. B.

Pumps.
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Textile Finishing Machinery Co.
Walsh & Weidner Boiler Co. The
Toomey, Frank.
Westinghouse Elec. & Mfg. Co.

Pump Valves.
See Valve Discs.

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Taylor Instrument Co.

Pyrometers.
Tagliabue Mfg. Co., C. J.
Taylor Instrument Co.

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Terrell Mch. Co.

Railings.
Dufur & Co.

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Tagliabue Mfg. Co., C. J.
Taylor Instrument Co.

Reeds.
American Supply Co.
Emmons Loom Harness Co.

Reels.
Crompton & Knowles Loom Wks.
Draper Corporation.
Saco-Lowell Shops.
Schofield, Wm. Co.
Whitin Machine Works.

Reflectors (Lamp)
Ivanhoe-Regent Works.

Regulators—Pressure
Tagliabue Mfg. Co., C. J.
Taylor Instrument Co.

Regulators—Temperature.
(See Temperature Controllers).

Repairing—Textile of all kinds.
General Machine Works.
Southern Spindle & Flyer Co.

Rib Top Cutters.
General Machine Works.
Wildman Mfg. Co.

Ring Travelers—Steel and Bronze.
Whitinsville Spinning Ring Co.
Whitin Machine Works.

Rings—Spinning.
(See Spinning Rings.)

Rocker Shaft Bearings.
(See Bearings.)

Rolls (Calender).
Roy & Son Co., B. S.

Rolls—Steel.
Southern Spindle & Flyer Co

Roofing.
Barrett Co., The
Belmont Iron Works.
Cortright Metal Roofing Co.
Detroit Graphite Co.
Peaslee-Gaulbert Co., Inc.
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Detroit Graphite Co.
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Peaslee-Gaulbert Co., Inc.
Sherwin-Williams Co.
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Rope—Transmission.
American Pulley Co.
Cresson-Morris Co.
Dodge Sales & Eng. Co.
Hunt Co., C. W. Inc.
Kelly Co., Henry C.
Link-Belt Company.

Roving Cans and Trucks.
(See Cans—Roving.)

Roving Machinery.
Howard & Bullough.
Saco-Lowell Shops.
Whitin Machine Works.

Rubber Stamps.
(See Stamps, Stencils, Etc.)

Rubber Goods.
Goodyear Tire & Rubber Co.

Sanitary Closet Cans.
Sanitary Eng. Co.
Selig Co.

Sanitary Products.
Cement Products Co.
Kaustine Co.
Rundle-Spence Mfg. Co.
Sanitary Eng. Co.
Selig Co.
Vogel Co., Jos. A.

Sash-Window—Steel.
Lupton's Sons Co., David.

Scales—Automatic.
American Kron Scale Co.
Lovingood Co.
Standard Scale & Supply Co.

Scale Preventer (Boiler).
See Boiler Feed Water Purification.

Schools.
Philadelphia Textile Schools.

Screens & Sieves—Perforated.
Beckley Perforating Co.
Erdle Perforating Co.
Link-Belt Company.

Scrubbing Machine—Floor.
American Scrubbing Mch. Co.

Sewing Machines.
Merrow Machine Co., The.
Textile Finishing Mchy Co.
Willcox & Gibbs Sewing Mach. Co.

Shafting & Hangers.
Cresson-Morris Co.
Dodge Sales & Eng. Co.
Link-Belt Co.
Seeger Machine Tool Co.
Transmission Ball Bearing Co.

Shears.
Roy & Son Co., B. S.

Shelving—Sectional Steel.
Collins, J. D.
Lupton's Sons Co., David.
Manufacturers' Equipment & Eng. Co.

Shingles—Asphalt.
Barrett Co.

Shingles—Metal.
Cortright Metal Roofing Co.

Shuttles.
Brown Co., David.
Crompton & Knowles Loom Wks.
Draper Corporation.
Shambow Shuttle Co.

Sinkers.
Adams Co., Geo. H.

Singeing Machinery.
Butterworth & Sons Co., H. W.
Phila. Drying Machine Co.
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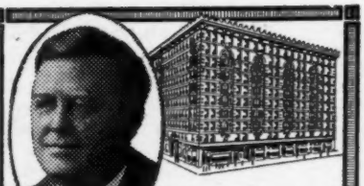

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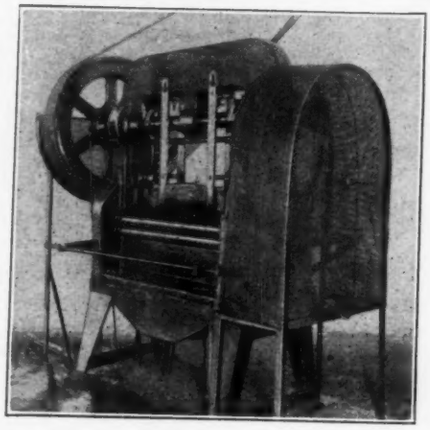

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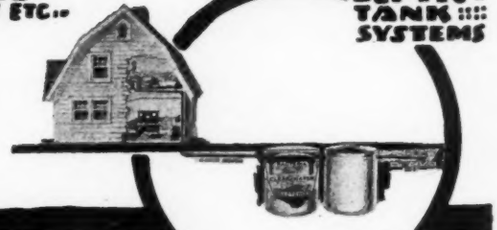

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Worn or broken Card Room Spindles re-topped or re-versed—ELECTRICALLY WELDED, bearings made full size and tops made to fit your flyer.

Spindles guaranteed not to break at weld—Prices and Delivery reasonable.

Southern Spindle & Flyer Co., Inc.

Charlotte, N. C.

Manufacturers, Overhaulers and Repairers of Cotton Mill Machinery.

W. H. Monty, Pres. & Treas. W. H. Hutchins, V-Pres. & Sec't.

DARY RING TRAVELER CO.

Square Pointed

Manufacturers of

Spinning and Twisting Travelers

Round Pointed

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Southern Representatives:

John E. Humphries, ... Greenville, S. C.
Charles & Asheley, ... Atlanta, Ga.

ADVERTISING conserves the buyer's time by acquainting him with a product at his leisure, long before the buying need arises.

Schofield Patent Automatic Opener and Duster.

For opening and dusting Wool, Cotton, Linters, Hair and kindred fibrous substances.

"Schofield" intermediate feeds for Cards, Wool, Rag, Waste, Hair and Lumper Pickers, Automatic, Cone and Oldham Willows, Rag and Extract Dusters, Waste Pullers, Blamaine Lap Feeds, Curled Hair Pickers, Needle Looms, etc.

WILLIAM SCHOFIELD COMPANY

Iron Founders, Textile Machinery Builders.

Krams Ave., Manayunk, Philadelphia, Pa.

Baling Ties
Box Strapping
Baling Presses

Signode System
Stencil Machines
Slasher Tape

Cowan Elevating Trucks
Cement Coated Nails
Cloth Goods Baling Presses

THE LOVINGOOD COMPANY

Factories, Branch Office and Warehouse, ATLANTA, GA. Direct from Factory to You

ALL STEEL ECONOMY FIRE PROOF **BALING PRESSES**

ALL SIZES FOR ALL PURPOSES

LARGEST LINE BUILT IN U.S.A.

ECONOMY BALER CO., DEPT C ANN ARBOR, MICH., U. S. A.

A Baker Type for Every Need

No matter what your handling problems may be, the Baker System of Industrial Transportation offers you a particular type that meets your exact requirements. No need ever to accept any type but the right one. Our line includes:

Baker Utility Trucks
Baker Low Platform Trucks
Baker Elevating Platform Trucks
Baker Tractors
Baker Locomotive Tractors
Baker Crane Trucks
Baker Dump Body Trucks

The Baker System includes a service. Trained engineers are ready to study your hauling problems and will advise you as to what type or types you need. Write for full facts NOW.

THE BAKER R & L COMPANY
Cleveland, Ohio—Originators of
THE BAKER SYSTEM OF INDUSTRIAL TRANSPORTATION

Bradley Stencil Machine

The Bradley Stencil Machine makes Stencils in half a minute, at reduced cost of 1-10c each. Write for catalogue and price list.

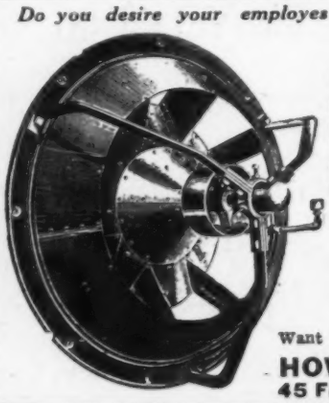
In universal use by thousands of manufacturers and shippers.

Oil Paper, Stencil Paper and Inks.
Bradley Ball Stencil Pot uses Liquid Ink for marking and stenciling. Price 35c or $3.50 per doz. Manufacturers of Oil Stencil Papers.

Write for Prices and Samples

A. J. BRADLEY MFG. CO.
99 Beekman Street, NEW YORK

Do you desire your employes to breathe Pure Air?



DUPLEX CONE FANS

have been designed to produce any pressure required in any plenum or exhaust system, the disc fan not being effective in many such installations.

Duplex Cone Fans are preferable to the commonly used centrifugal or enclosed blower fans, because of the small space required, and also the small initial and power maintenance cost.

Want Particulars? Ask them of

HOWARD & MORSE
45 Fulton St., New York

THIRTY SIXTH SESSION

PHILADELPHIA TEXTILE SCHOOL

OF

The Philadelphia Museum and School of Industrial Art

Day School opens September 22, 1919.
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Two **Diploma Courses** are offered in the Day School.
The **Regular Textile Course**—Three Years. Thorough and Comprehensive.
The **Chemistry, Dyeing** and **Printing Course**—Three dealing with all Textile Fibres.
Applications should be filed at least two weeks prior to the opening day.
Circulars giving details of Day and Evening Schools may be had by applying to
E. E. France, Director, Broad & Pine Sts., Phila., Pa.

General Auditing
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Federal Tax Returns
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ATLANTA AUDIT CO., Inc.

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M. R. Miles, Pres't. D. E. Shumaker, V. Pres't.
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"Load & Look"

Kron Scales

AUTOMATIC Made in U. S. A. **SPRINGLESS**
All Metal Construction
ALL TYPES **ANY CAPACITY**

Write for complete information

American Kron Scale Co.

422 East 53rd St., New York
Branch Office and Service Stations in Principal Cities
CANADIAN KRON SCALE CO., MONTREAL, CANADA.

J. LEON HOFFMAN

Landscape Architect
and Engineer

Industrial Villages a Specialty

References from some of
the Largest Cotton Mills

103 Peachtree Street **Atlanta, Ga.**

Wheels or Gears Come Off Quick and Clean

There will be no more back-breaking labor, no more damaged wheels or gears, when you take them off the shaft by means of the

GREB AUTOMATIC GRIP PULLER

which is the best tool made for the purpose, and can be used for removing wheels, gears, commutators, transmissions, pulleys, etc.

Strong, simple and trouble-proof. Adjusts itself instantly and locks in any position. Capacity 1 to 18".

Sent on 10 days' trial, and if it doesn't prove indispensable, your money will be refunded. Write today for bulletin and prices.

THE GREB CO., 171 State St., Boston, Mass.

THE NORTHROP LOOM

TRADE-MARK

meets the question of labor shortage by calling for less weavers in the weave room;

A Northrop loom weave room needs but 25 to 50 per cent. as many weavers as with common looms;

It goes far towards replacing the shortage in weave room production by its capacity to be operated without any weavers at all during the noon hour and a corresponding time night or morning;

It can be operated by less experienced help than the common loom;

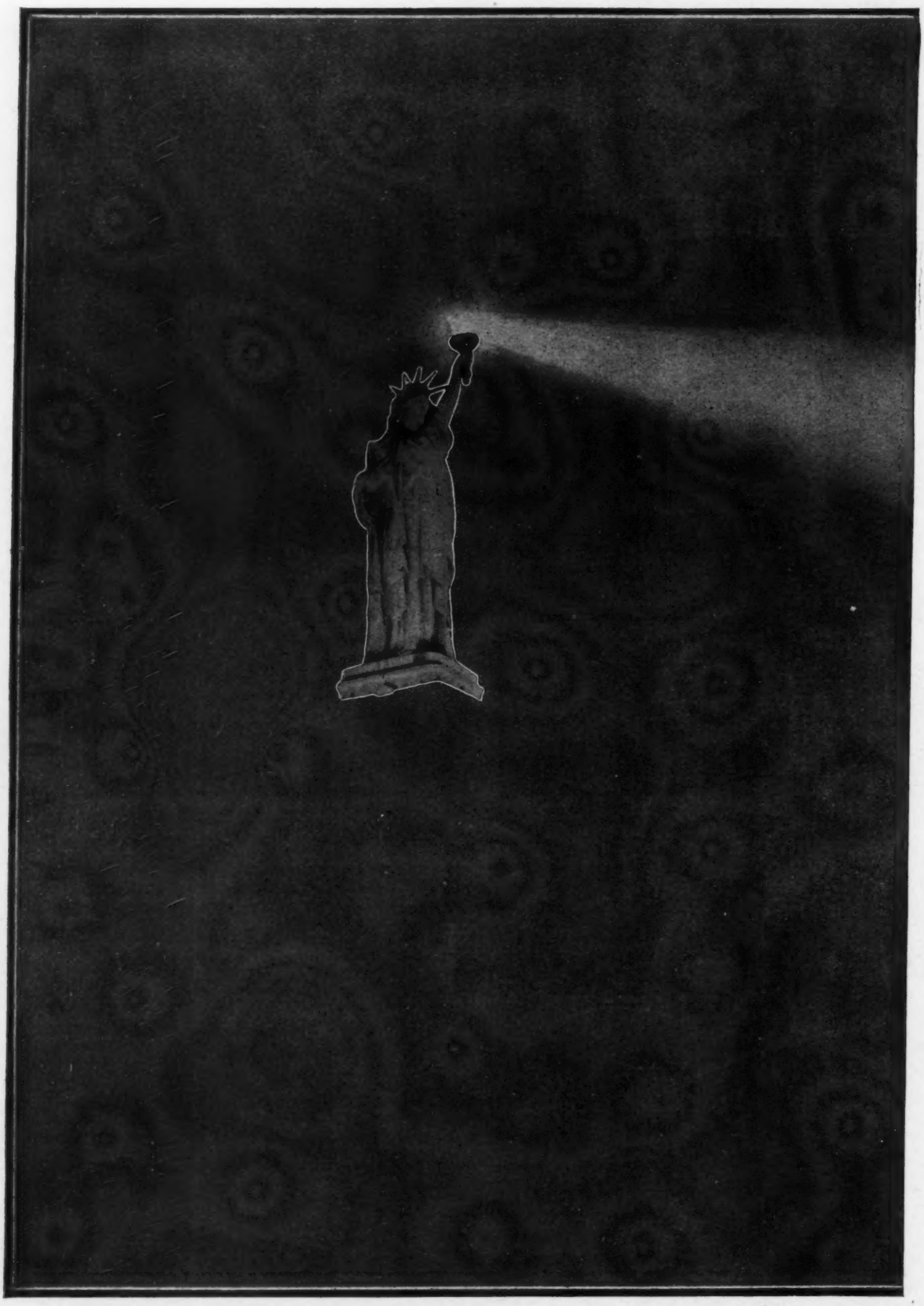
Bear in mind that the added saving in making high-priced cloth soon pays the increased cost of the looms compared with pre-war prices.

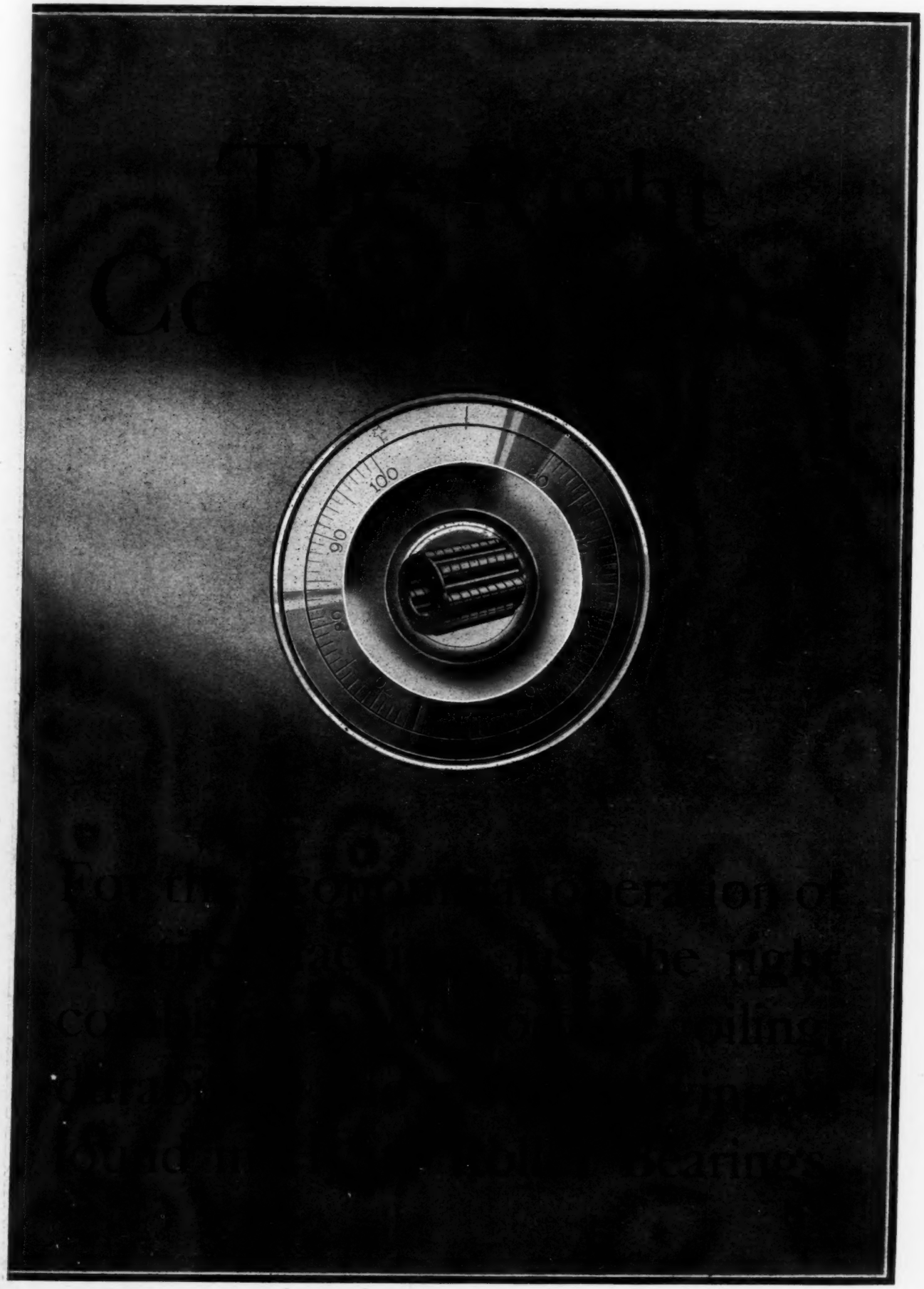
DRAPER CORPORATION

HOPEDALE MASSACHUSETTS

Southern Office
188 South Forsyth Street Atlanta Georgia

Copyright 1917 by Draper Corporation




100
90

Modern Spinning Mill Equipped with Cramer High Duty Humidifiers.

How to Approach the Generation and Distribution of Heat

Your humidifying—your process piping, your heating—yes even your generation of power are all part and parcel of one big problem.

The problem is one of heat—its generation and distribution.

These several problems—approached and reviewed by one concern, specializing in these things makes for an ultimate economy that is reflected way back to your coal pile—yes to your check book.

Aside from the advantages you have in being able to purchase any of the standard methods of humidifying from us, there is another.

This organization—the only one that we happen to know of—can, will and does undertake your whole problem of heating, humidifying, process, and power piping.

You get all the advantages incident to consolidation of all problems into one. One set of workmen—one house to deal with. Action. Service.

Parks-Cramer Company

Successor to

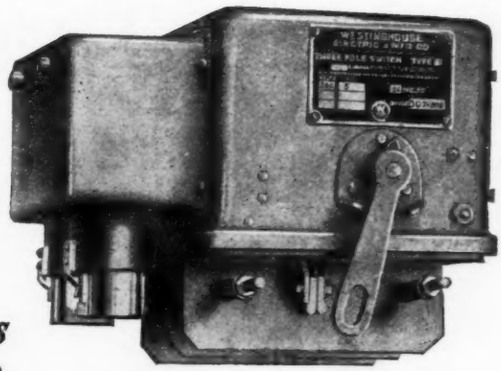
The G. M. Parks Company
Fitchburg, Mass.

Boston, Mass.

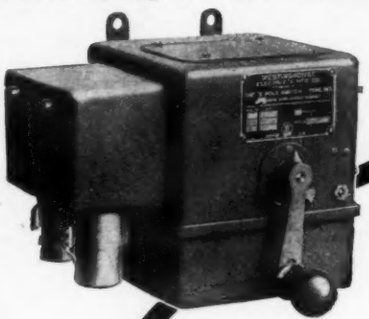
Stuart W. Cramer
Charlotte, N. C.

Modern Weave Shed Equipped with Turbo "Ring Construction" Humidifiers.

-And Now The Type 815-



Starting Switch for Squirrel Cage Motors from one-half to 10 Horsepower



Now that this switch is available at moderate cost, you will not need to worry along with the drawbacks of the old knife switch.

What Type 815 does—

—PROTECTS THE MOTOR AGAINST OVERLOADS

—PROTECTS BOTH MAN AND EQUIPMENT AGAINST ACCIDENTAL STARTING OF MOTOR SHOULD POWER UNEXPECTEDLY RETURN.

—LOWERS THE FIRE RISK

—HELPS TO LOWER MAINTENANCE COSTS

Quick Make and Break—When once started in either opening or closing direction, action of contacts is automatic and instantaneous, and cannot be stopped or retarded.

Rolling Contacts—Arcing is confined to the tips of contacts. The rolling action of contacts prevents roughing or pitting of the contact seats. A strong spring holds contacts firmly in closed position.

Current Carrying Parts Enclosed—This precautionary measure safeguards the employee.

Conduit or Open Wiring—Knockout holes at top and back.

Accidental Starting of Motor Prevented—Hand reset protects workman and equipment against accidental starting of the motor.

Rid of the Oil Nuisance—Switch fitted with asbestos-lined tank and asbestos barriers so that oil need be used only when presence of explosive gases make it necessary.

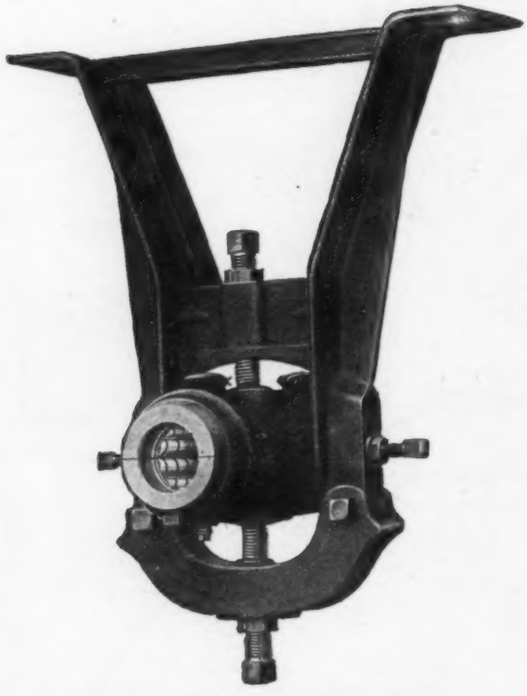
Ask for Descriptive Leaflet 1441 A

Westinghouse Electric & Manufacturing Co.,
East Pittsburgh, Pa.

W
WESTINGHOUSE ELECTRIC

Westinghouse

What Type of Hanger



"Pioneer" Steel Frame

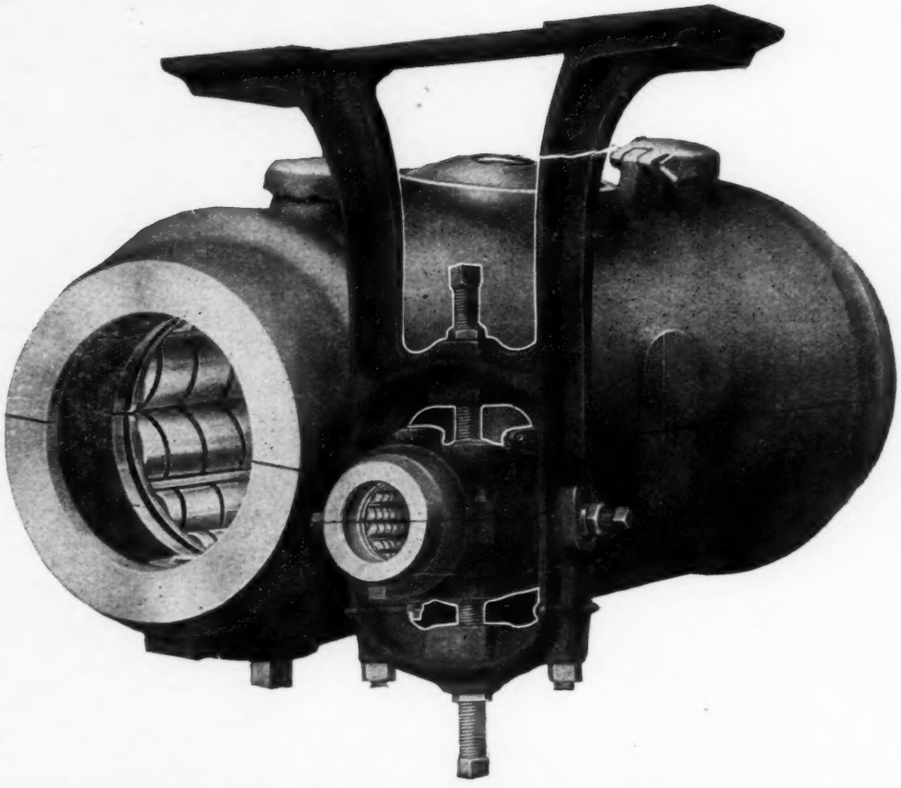
Universal Giant (U. G.) Frame

J-Type Frame

Ball & Socket (B. & S.) Frame

HYATT BEARINGS

Frame Do You Use?



Hyatt Roller Bearing Box Hyatt 4 Point Set Screw Frame

Hyatt Roller Bearing line shaft boxes can be applied to the following types of frames:

1. 4 Point Set Screw Frame
2. Pioneer Steel Frame
3. Universal Giant (U. G.) Frame
4. Ball and Socket (B. & S.) Frame
5. J-Type Frame

No elaborate and expensive change-overs are necessary, therefore, in order to obtain the many advantages of Hyatt Roller Bearing Hangers.

Any millwright can apply Hyatt Roller Bearing boxes to these types of frames. He simply takes out the old babbitted bearings and puts in the Hyatt Roller Bearing box which is split in two sections throughout—the pulleys, collars and couplings on the shaft do not have to be disturbed.

This points to a simple and inexpensive way of obtaining Standardized Transmission Equipment. Standardization gives maximum production at minimum cost.

Our transmission data will be of value and interest to you. Send for it today.

MOTOR BEARINGS DIVISION
DETROIT, MICHIGAN

HYATT ROLLER BEARING COMPANY
INDUSTRIAL BEARINGS DIVISION
METROPOLITAN TOWER, NEW YORK

B-108

TRACTOR BEARINGS DIVISION
CHICAGO, ILLINOIS

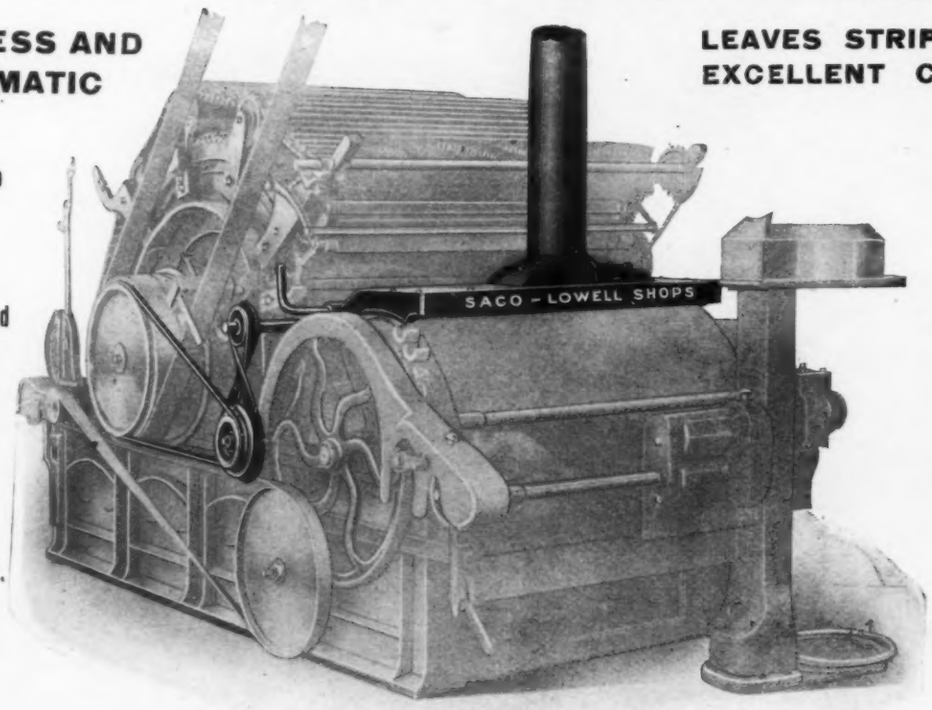
Manufacturers of Bearings for Mine Cars, Ore Cars, Steel Mill Cars, Roller Tables, Trolleys, Cranes, Hoists, Machine Tools, Line Shafts, Countershafts, Concrete Machinery, Textile Machinery. Conveyors, Lift Trucks, Industrial Trucks, Railway Service Cars, Storage Battery Locomotives, etc.

FOR LINE SHAFTS

SACO-LOWELL CARD STRIPPER

DUSTLESS AND AUTOMATIC

LEAVES STRIPPINGS IN EXCELLENT CONDITION



Ecomomical to Operate

Saves Time and Labor

Strips Card Clean

Sanitary and Efficient

Low Cost of Maintenance

Simple, Durable Practical

Control Always Absolute

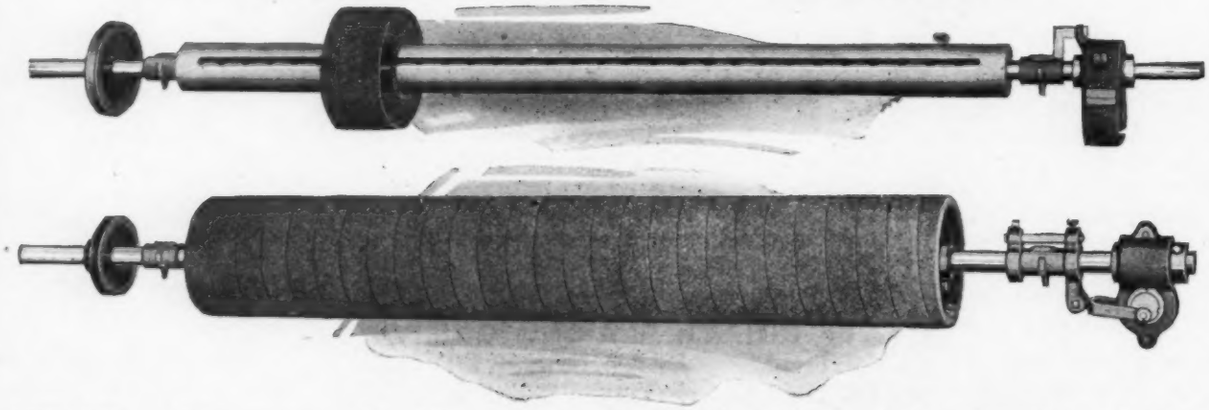
Full Information Furnished

Rogers W. Davis, Southern Agent CHARLOTTE, N. C.

Saco-Lowell Shops, Newton Upper Falls, Mass.

Southern Branch Office GREENVILLE, S. C.

Roy-Hardy Screw Traverse Cotton Card Grinder



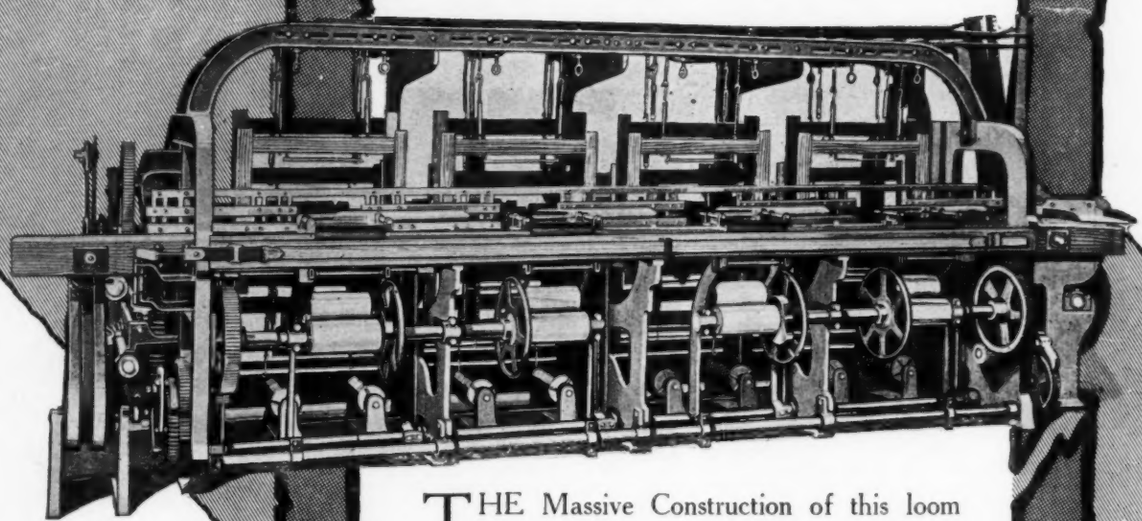
THE endorsement of mills which stand at the head of the Textile Industry is stronger argument than anything we can say about our grinders.

B. S. ROY & SON CO. **Established 1868** **WORCESTER, MASS.**

SOUTHERN BRANCH: E. M. Terryberry, Agt., Howard Bros. Mfg. Co., 1126 Healey Bldg., Atlanta, Ga.

FLETCHER WORKS

Formerly
Schaum & Uhlinger



COTTON BELTING LOOM

THE Massive Construction of this loom gives assurance that in every operation it possesses the ruggedness necessary to weave belting and heavy webbing in 2, 3 and 4 ply weaves.

Arranged for either belt or motor drive.

This loom will make:

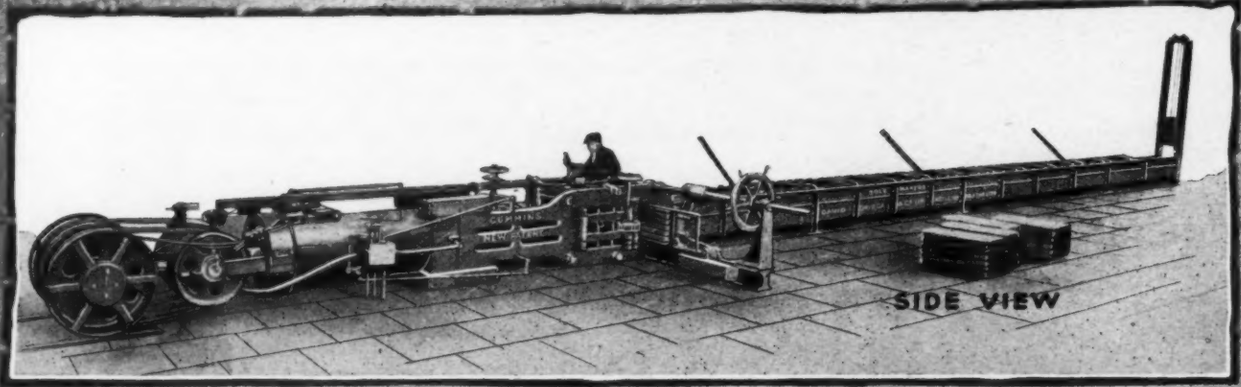
4 pieces of 8 in. web.
6 pieces of 4¾ in. web.
8 pieces of 3 in. web.
10 pieces of 2¼ in. web.
12 pieces of 1½ in. web.

If you will send samples of belt you desire to make our engineering department will be pleased to advise you about the right loom to use.

Write for catalog or other information about Fletcher Works looms.

FLETCHER WORKS

Glenwood Ave. & 2nd Street
Philadelphia, U. S. A.



CUMMINS' NEW PATENT HORIZONTAL

COTTON BALING PRESSES

FOR HIGH DENSITY "END-PRESSED" BALES

56 POUNDS PER CUBIC FOOT

TO transport the enormous cotton crop of the South at the least expense, and to place it at its destination in the best condition, resolves itself into a question of **proper baling.**

Whether the destination is to points in this country or in foreign countries the essential features of proper baling consists of density and uniformity. These features are absolutely necessary especially during these times of freight congestion—absolutely essential to the rapid and economical transportation of cotton.

Compare the bales from other countries with American bales. In Egypt and in India one can often see many thousand bales which are so even and compact as they lay in tiers that they appear as building blocks.

It is that density of balage—that uniform size—that compact and neatly tied bale that pays—in dollars and cents—and such bales are compressed in the

Cummins' New Patent Horizontal High Density "END-PRESSED" BALING PRESS

Capable of Compressing 56 lbs. to the cu. ft.

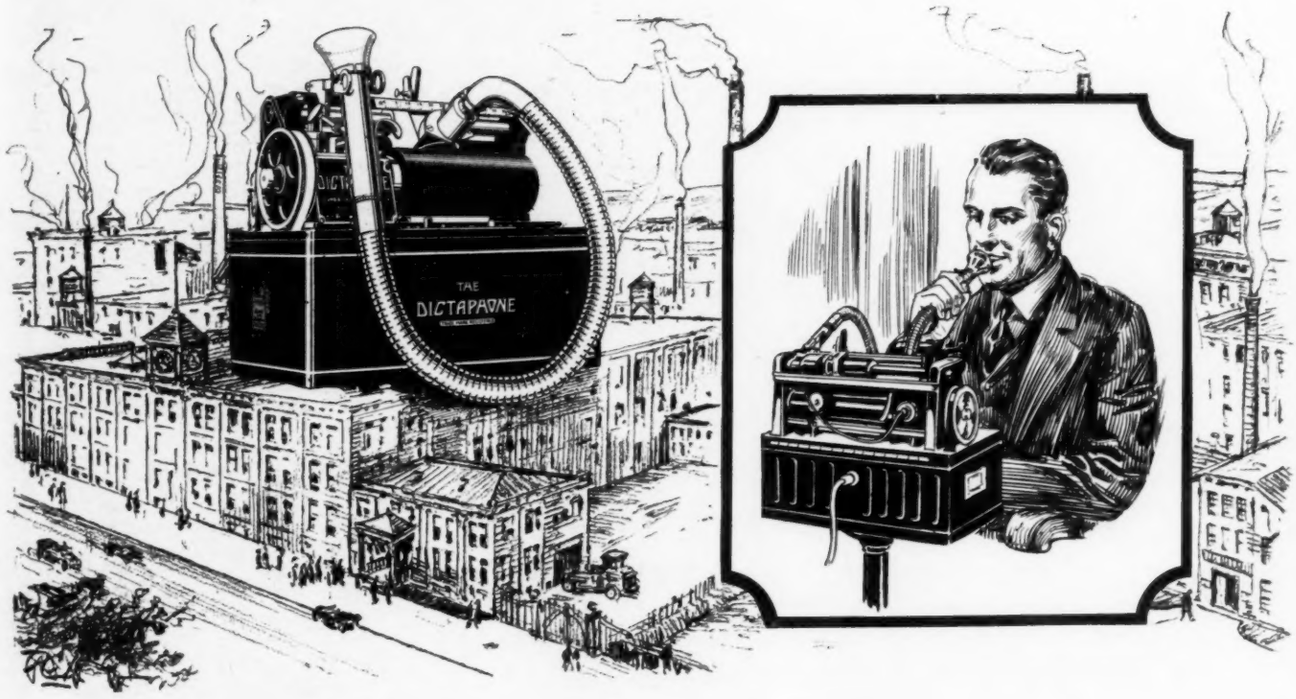
This baling press will solve the greatest problem confronting the South today; that of placing her cotton in near and far away ports in the best condition and at the lowest possible cost.

Much valuable information is embraced in a booklet which we will be glad to send those who indicate interest in a question of such importance to the South and to the Nation as the proper baling and economical transportation of cotton. Write for it.

W. D. Crumpton, 29 Broadway, N. Y., American Representative

DAVID BRIDGE & CO. LTD.

CASTLETON MANCHESTER ENGLAND



"Give The Dictaphone a Good Trial," Says Worsted Dress Goods Maker

D. GOFF & SONS, Pawtucket, write:

"In reply to your inquiry as to how we like the four dictating machines and transcribing machine, beg to advise that we are well satisfied with The Dictaphone. We find that it saves time for our executives, who are frequently interrupted by the telephone while dictating, and that it is always on the job, and letters can be dictated as soon as the information can be obtained.

"We would not hesitate to advise anyone to give this machine a good trial."

Phone or write for 15-minute demonstration in *your* office, on *your* work.

THE DICTAPHONE

Registered in the U. S. and Foreign Countries

Dept. 137-H, Woolworth Building, New York City

Atlanta, Columbus, Brunswick, Jacksonville, Charleston, Birmingham, Montgomery, Charlotte, Burlington, Chattanooga, Clarksdale, Wilmington, Nashville, Valdosta, Savannah, Knoxville, Memphis

Write for Booklet, "The Man at the Desk"

There is but one Dictaphone, trade-marked "The Dictaphone," made and merchandised by the Columbia Graphophone Company.

"The Shortest Route to the Mail-Chute"

Thacker Warp Stop Motion Frame

Attachment used whereby open drop wires can be drawn in at frame and transferred to loom as readily and safely as are the closed drop wires

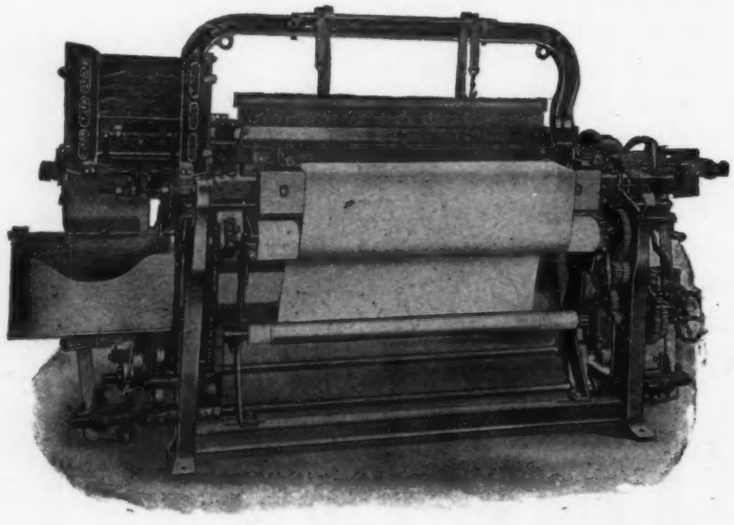
We Offer to the Trade a New Bobbin Stripper for Automatic Loom Bobbins.

Crompton & Knowles Loom Works

Worcester, Mass.

Providence, R. I. Philadelphia, Pa. Paterson, N. J.

Southern Representatives---Alexander & Garsed, Charlotte, N. C.
South American Representatives---W. R. Grace & Co., New York



THE STAFFORD Automatic Loom stands for low operating cost and high quality of fabrics.

It has the widest scope of any automatic loom and can be easily changed over from one fabric to another.

And remember that while saving 50% to 60% in weaving costs for you the weavers can earn from 40% to 50% more wages.

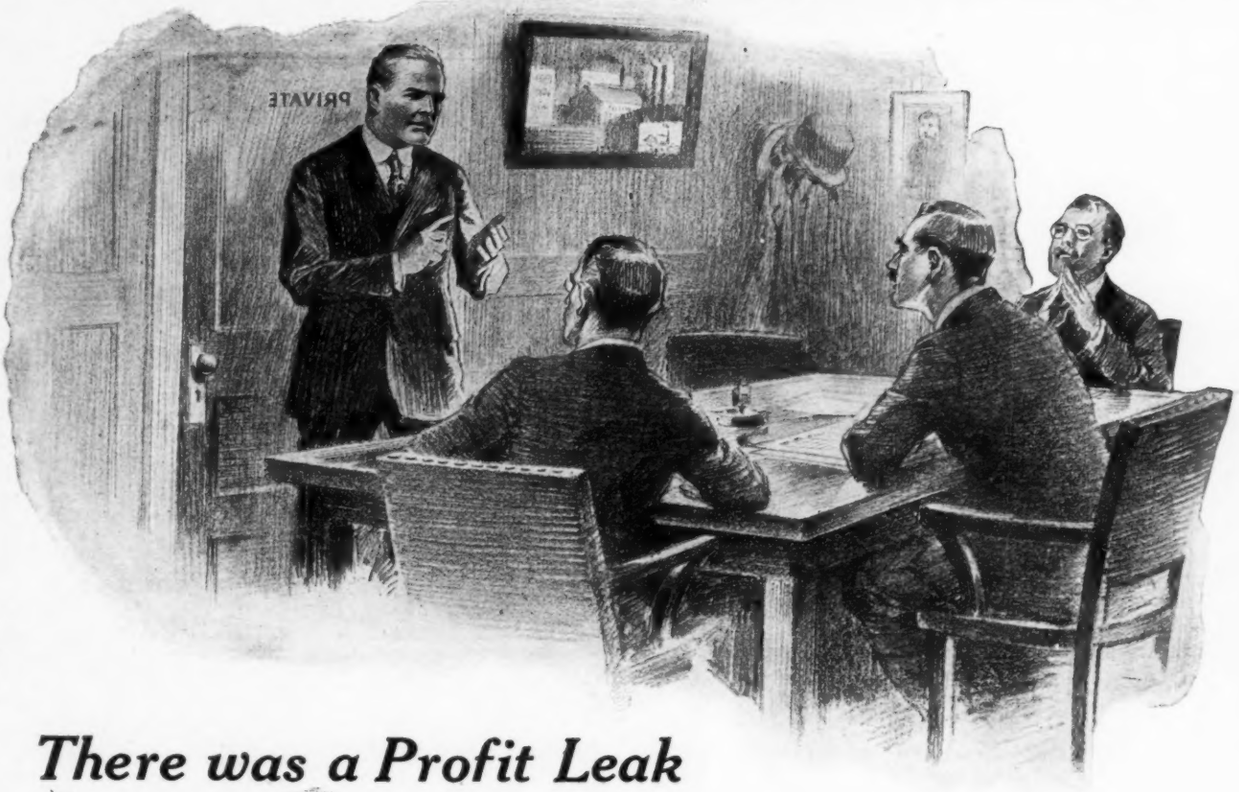
Write for illustrated catalog.

The Stafford Company

Readville, Mass.

J. H. MAYES, Southern Agent
1112 Independence Building, Charlotte, N. C.

INTERNATIONAL TIME RECORDERS



There was a Profit Leak

So they called in the Plant Manager.

He surprised them by saying unhesitatingly, "If there's a leak, it's in our timekeeping system."

"Our checking methods are reliable for all other matters," he continued, "but with the old-fashioned, manually-controlled timekeeping which we inherited from the previous management I can never be sure on any payroll that we are not losing money which should go into profits."

Summing up, he said, "The only safe solution of modern timekeeping problems lies in a guaranteed mechanical system. We humans err and forget—a perfected mechanism can't."

INTERNATIONAL TIME RECORDERS

meet all requirements of just such situations as this. They are automatic. They take the uncertainty out of timekeeping and insure that each payroll will be RIGHT TO THE CENT for services received.

Internationals clearly print each worker's time record—to the minute. They cut clerical work and expense to the minimum, promote punctuality, increase output, do away with disputes and at all times give the absolute accuracy needed to protect you against profit-wasting time leaks.

International Automatic Card Recorder

You ought to investigate Internationals at once. Among the 260 International models either electrically-operated or spring-driven, there is a type precisely suited to your needs. Write us.

INTERNATIONAL TIME RECORDING CO.

General Offices: 50 Broad St., New York City **Works** { **Endicott, N. Y.** / **Toronto, Can:**

Canadian Offices: International Business Machines Co., Ltd., 300 Campbell Avenue, Toronto

London Office: 57 City Road, Finsbury, London, E. C., England

Paris Office: 75 Avenue de la Republique, Paris, France

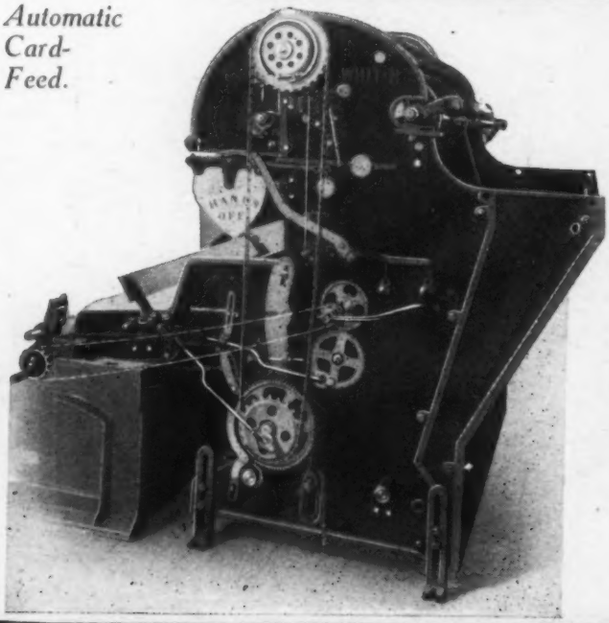
Offices and Service Stations in all principal cities of the world

WHITIN MACHINE WORKS

ESTABLISHED 1831

TEXTILE MACHINERY

Automatic Card-Feed.



Manufacturers of

Machines for Cleaning, Opening, Carding and Spinning on the Coiler or Condenser Systems, of Wool, Cotton, Cotton Waste, Asbestos, etc.

Write for Particulars Stating Your Requirements

MAIN OFFICE AND WORKS

WHITINSVILLE, MASS., U.S.A.

SOUTHERN OFFICE CHARLOTTE N.C.

THE FUN-FUL LINE

PLAYGROUND EQUIPMENT

Athletic Recreation—Today's Essential For Labor Contentment and Efficiency

THE question of efficient labor is of vital importance to every textile mill man.

The laboring man of the future is going to be influenced by the advantages offered him and his family by the mill—advantages that attract him and bind him to the job.

Such advantages are no longer considered or classified within the narrow limits of "Welfare Work" but are considered by the far-sighted executive as an absolute necessity that will prove a paying investment.

It required no stretch of imagination to picture the contentment and loyal feeling of employees that are provided with outdoor gymnasia and athletic goods, and nurseries and playgrounds for their families. The workers are healthier in mind and body through the use of such apparatus and they always have something to look forward to at the end of their day's arduous labor. Playgrounds for the children uplifts the standard of health throughout the entire village, increasing the ability of the larger operatives to work more efficiently and contentedly.

In short, there is a reaction throughout your entire family of operatives—a reaction mentally, morally and physically that cannot help but be profitable in dollars and cents to the mill.

FUN-FUL Playground Apparatus is already installed in hundreds of the largest mills in the country who are finding that it's a paying investment—finding that FUN-FUL Apparatus is made to stand the use and abuse of the roughest operatives. The line includes Swings, Slides, See-Saws, Ocean Waves, Giant Strides, Outdoor Gymnasia, Athletic Goods of all kinds, etc.

Ask today for complete catalog.

Hill-Standard Co., General Sales Office, Conway Bldg., Chicago
Factories: Anderson, Ind., Kokomo, Ind.

Edward Ferger, Southern Representative, 276 Lucile Ave., Chicago

SOLVING HAULAGE PROBLEMS

THIS BOOK TELLS HOW

Your time, like most textile executives, is doubtless pretty well taken up, but we believe you will find the time profitably spent by reading this interesting book—for from its pages you may secure suggestions which will mean dollars and cents to your mill.

It explains systems that have solved the haulage and trucking problems of other manufacturers—how they are moving more material more quickly and with fewer men and enable you to put these men to more productive work, relieve congested aisles filled with truckers,—in short

"THE TRACKLESS TRAIN"

is a story of lowered costs—of increased mill efficiency. Every mill of from 10,000 to 150,000 spindles will find "The Trackless Train" system the only true economical way to handle the moving material in and about the mill—a completely charted transportation system adapted to the peculiar requirements of each mill.

FILL OUT AND MAIL THIS COUPON TODAY

Just tear out this page and hand it to your stenographer—the book will be sent to you immediately without cost or obligation.

MERCURY MANUFACTURING COMPANY

4120 South Halsted St., Chicago, Ill., U. S. A.

Southern Office: Sam C. Moyers, P. O. Box 1175, Savannah, Ga.

New York	Albany	Savannah
Philadelphia	Richmond	Los Angeles
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Mercury Mfg. Co.,
4120 So. Halsted St.,
Chicago, U. S. A.: You may send me your free book, "The Trackless Train."

Name .....

Mill .....

City ..... State .....

Statements of Importance to Truck Buyers

THE following group of statements made by The White Company in recent advertising summarizes the achievements of the White Product—the White fleet growth, mileage records, honors won in commerce and war; reviews the factors of strength and permanence back of every owner's investment in White Trucks.

All bear on one simple fact: the real value of a motor truck; its *ability to do the most work for the least money under all conditions.*

"Year after year this list grows. It is something more than a list of well-known concerns owning ten or more White Trucks. It represents *a yearly progress in added trucks per owner*—the most extensive growth of individual fleets ever published by a truck maker.

"There are now 2774 White Fleets in actual service, totaling 33,139 trucks, exclusive of all single truck installations."

"The ultimate mileage of White Trucks is still unmeasured. Some have rounded out 300,000 miles. Many have run 200,000 miles. Hundreds, probably thousands, have passed the 100,000 mark—a very common White performance."

"The purchaser of a White Truck backs his investment in it with the strength of The White Company, with its years of successful experience, with its thousands of trained employees, with its tens of thousands of trucks in active service, with its millions of capital and a service organization, nation-wide, which has no parallel in the industry."

The complete statements, in pamphlet form, will be sent upon request

THE WHITE COMPANY
CLEVELAND

Do You Prefer Oiled Floors?

Read How One Mill Manager Gets Better Results At a Saving of Time and Oil

to oil the floors once a month. Between oilings, the same machine to oil the floors once a month. Between oilings, the same machine is used for dry scrubbing.

But let the Mill Manager tell you. He writes:

"We can easily oil 20 to 25 thousand square feet of floor in 10 hours' time and the beauty about it lies in the fact that we get a uniform distribution of oil and use less than half the amount that we formerly used in putting it down with a hand oiler. Our floors are taking on a uniform color and a beautiful polish—prior to putting in the machine we kept two scrub women regularly employed. These have been discontinued. Our overseers and second hands seem to take pride in finding men temporarily up with their work and putting them out for an hour or so at a time. In this way we keep our floors in good shape without any extra labor cost."

(Name of this concern furnished on request.)

This mill is making a saving of $680.00 a year through use of the Finnell System. Other mills are making similar savings in proportion. Whether it is your custom to oil your floor or scrub your floors you can profit by the Finnell System. We will be pleased to estimate the possible results and possible savings in your mills—and to demonstrate the system on your floors. Inquiry will bring further information without the slightest obligation.

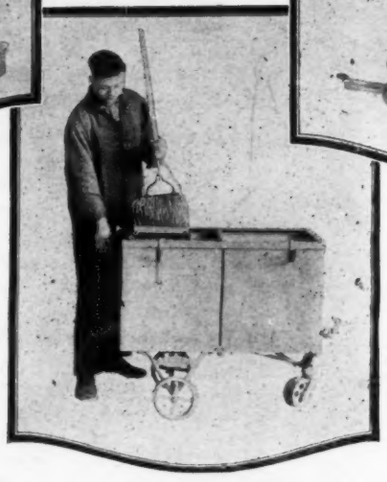
American Scrubbing Equipment Co.

Formerly the Finola Mfg. Co.

General Offices: 180 N. Wabash Ave., Chicago

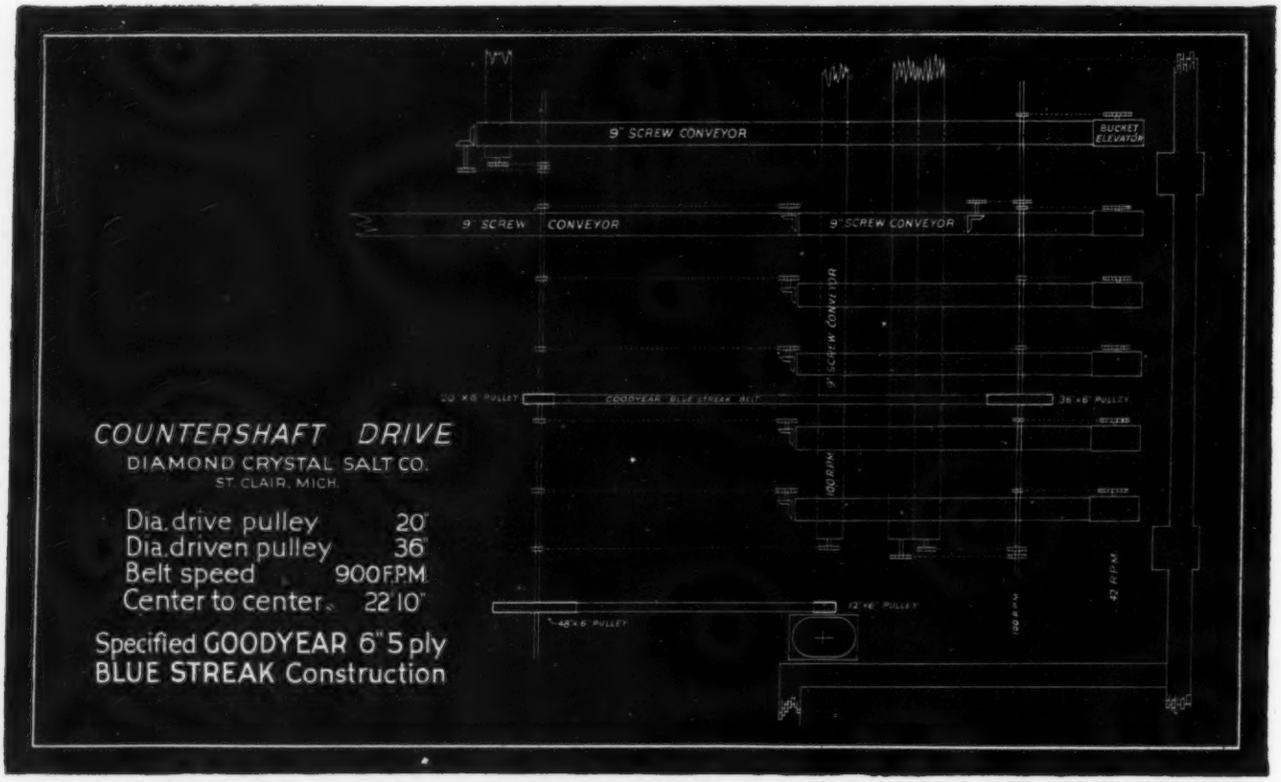
Factories: Hannibal, Mo.

Atlanta
Baltimore
Buffalo
Boston
Chicago
Cincinnati
Cleveland
Denver
Detroit
Indianapolis
Kansas City
Los Angeles
Louisville
Minneapolis
Milwaukee
Newark
New Orleans
New York
Omaha
Philadelphia
Pittsburgh
Providence
St. Louis
Salt Lake City
San Francisco
Seattle



Some Textile Industries Among the Big List of Finnell System Users

River Spinning Co., Pawtucket, R. I.
Arlington Mills, Lawrence, Mass.
Wanskuk Mills, Providence, R. I.
Aberfoyle Mfg. Co., Chester, Pa.
Wiscassett Mills, Albermarle, N. C.
New Market Mfg. Co., New Market, N. H.
Stark Mills, Manchester, N. H.
Leaksville Cotton Mills, Leaksville, N. C.
Salisbury Cotton Mills, Salisbury, N. C.
Cannon Mfg. Co., Kannapolis, N. C.
Spartan Mills, The, Spartanburg, S. C.
The Loray Mills, Gastonia, N. C.
American Thread Co.
Carolina Cotton Mills, Spray, N. C.



Saving $444.38 on a Countershaft Drive—and the G. T. M.

The Diamond Crystal Salt Company of St. Clair, Mich., had been having a lot of trouble—and paying many high belting bills—because of a motor drive to a countershaft operating five elevators. The expensive standardized belt they had been using cost in 1917, $1.60 a foot—$84.80 for the 53 feet required. It generally lasted about three months, and required many take-ups at that.

One day a G. T. M.—Goodyear Technical Man—called and explained the Goodyear Plan of selling belts to meet conditions instead of as a hardware man sells nails. The Purchasing Agent, Mr. Engelgau, was interested, told him about the countershaft drive that cost $28.26 a month, and asked him to look it over.

The G. T. M.—our Mr. J. G. Taylor—studied that drive, studied all the conditions carefully and in detail. After making his measurements he told the P. A. he recommended for that drive a certain type of Goodyear Belt costing then 68c per foot—$36.04 for the belt. The P. A. thought he couldn't lose anything at that price—even if the belt ran only five weeks—and told him to send it along.

On December 1, 1917, that belt was installed. At the time this advertisement goes to press the belt is still running and in good condition. It has already given 17 months' service for the $36.04 spent for it. That seventeen months' service for the standardized $1.60 belt would have cost at the prices of the time at least $480.42. The G. T. M.'s service in specifying the right belt for the service represents a saving of $480.42 minus $36.04, or $444.38.

The belt has also reduced slippage and take-ups to a minimum never before attained on that countershaft drive. Not only does it save money, but it saves trouble and prevents interruptions formerly customary.

If you have a belt-devouring drive that is eating too many dollars, ask a G. T. M. to call. He'll do it without charge when next he is in your vicinity. There are many of them—all trained in the Goodyear Technical School—all with experience in plants similar to yours—all selling belts to meet conditions and not as a grocer sells sugar. The G. T. M.'s services are free simply because the savings they effect for purchasers are so considerable that a gratifying volume of business from the plants served is certain to come to us within a few years.

THE GOODYEAR TIRE & RUBBER COMPANY
AKRON, OHIO

BELTING · PACKING · HOSE · VALVES

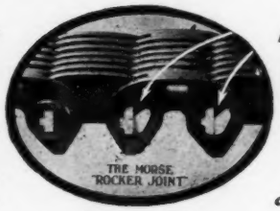
GOODYEAR

AKRON

The Sign of Efficiency

MORSE DRIVES

The Sign of Durability



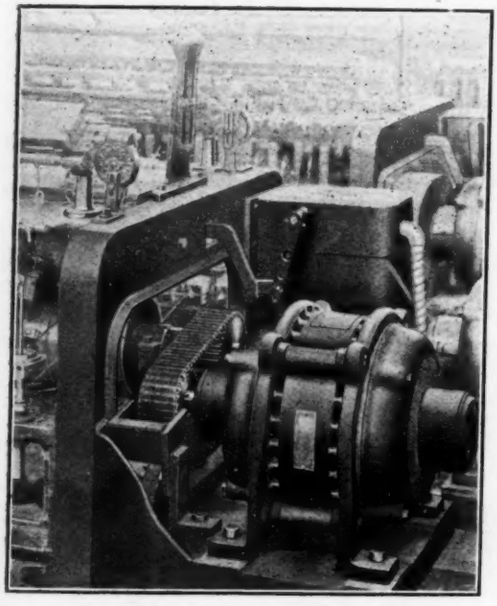
Positive as Gears

Flexible as a Belt

Longer Life

Wiscassett Mills Co., Albemarle, N. C. J. E. Sirrine, Mill Engineer and Architect.

Morse Silent Chains drive the knitters, loopers, ribbers, elevators, sewing machines, dye house and presses in the above mill.



Typical 7½ H. P. Spinning Frame Drive.

* * * * "We have found that there is great advantage in maintaining a uniform rate of speed, which not only produces a higher percentage of production, but better quality of cloth." * * * *

* * * * "I found that the best form of drive for spinning frames and other machines in a cotton mill, was the direct silent chain drive. The present system of belt drive which is used in most of the old mills is very inefficient." * * * *

—Daily News Record, July 7.
From Address, Joseph E. Sirrine, July 5th, 1919.
Cotton Manufacturers of North Carolina.

Power for your machines—Durability in your transmission—Efficiency in your production—Confidence in your cost—Reach their highest effectiveness when "MORSE" Silent Chain Drives transmit the power. There is only one steel belt that, since the beginning of its use, has made good—and held itself supreme, thru years of textile service—and that one is "MORSE."

MORSE CHAIN COMPANY, Largest Manufacturers of Silent Chains in the World ITHACA, N. Y.

MORSE ENGINEERING SERVICE Address Nearest Office. **ASSISTANCE WITHOUT OBLIGATION**

Boston, Mass. .....141 Milk Street
Chicago, Ill. .....Merchants Loan & Trust Bldg.
Cleveland, Ohio .....Engineers Bldg.
Detroit, Mich. .....1003 Woodward Ave.
Greensboro, N. C. .....805 Ashboro Street
New York City.....50 Church St., Hudson Terminal Bldg.
Pittsburgh, Pa. .....Westinghouse Bldg.
San Francisco, Cal. .....Monadnock Bldg.
Atlanta, Ga. .....Earl F. Scott, M. E., 702 Candler Bldg.
Canada.....Jones & Glassco, Reg'd.
Montreal, St. Nicholas Bldg. Toronto, Bank of Hamilton.
Kansas City, Mo. .....Morse Engineering Co., Finance Bldg.
Minneapolis, Minn...Strong-Scott Mfg. Co., 413 Third St., S.
St. Louis, Mo.....Morse Engineering Co., Chemical Bldg.

"MORSE" is the Guarantee always behind our Service, Products and Results.

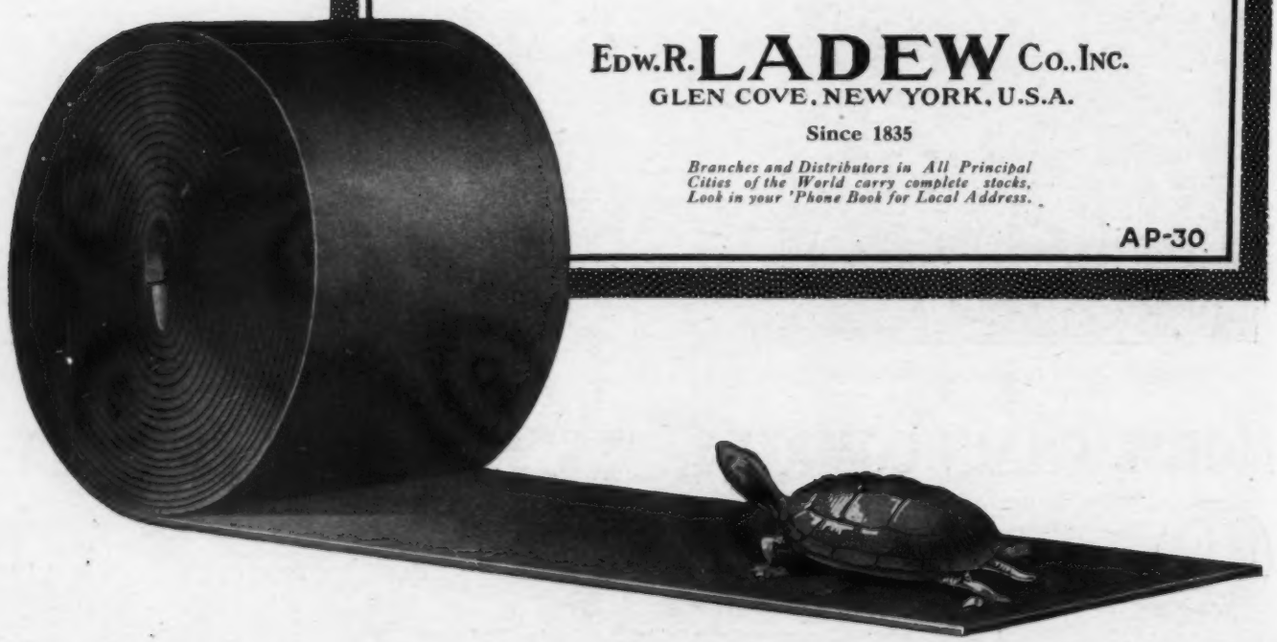
"TURTLE" LEATHER BELTING

The earnings on your investment in good leather belting come to you in increased power transmitted, in increased output due to freedom from interrupted service, and in lower repair and replacement costs.

The better the belt, the larger its earnings and the more quickly is the purchase price returned and profits paid.

The aggregate earnings paid by a good leather belt during its useful life, make its first cost of no moment except as indicative of its prospective earning power.

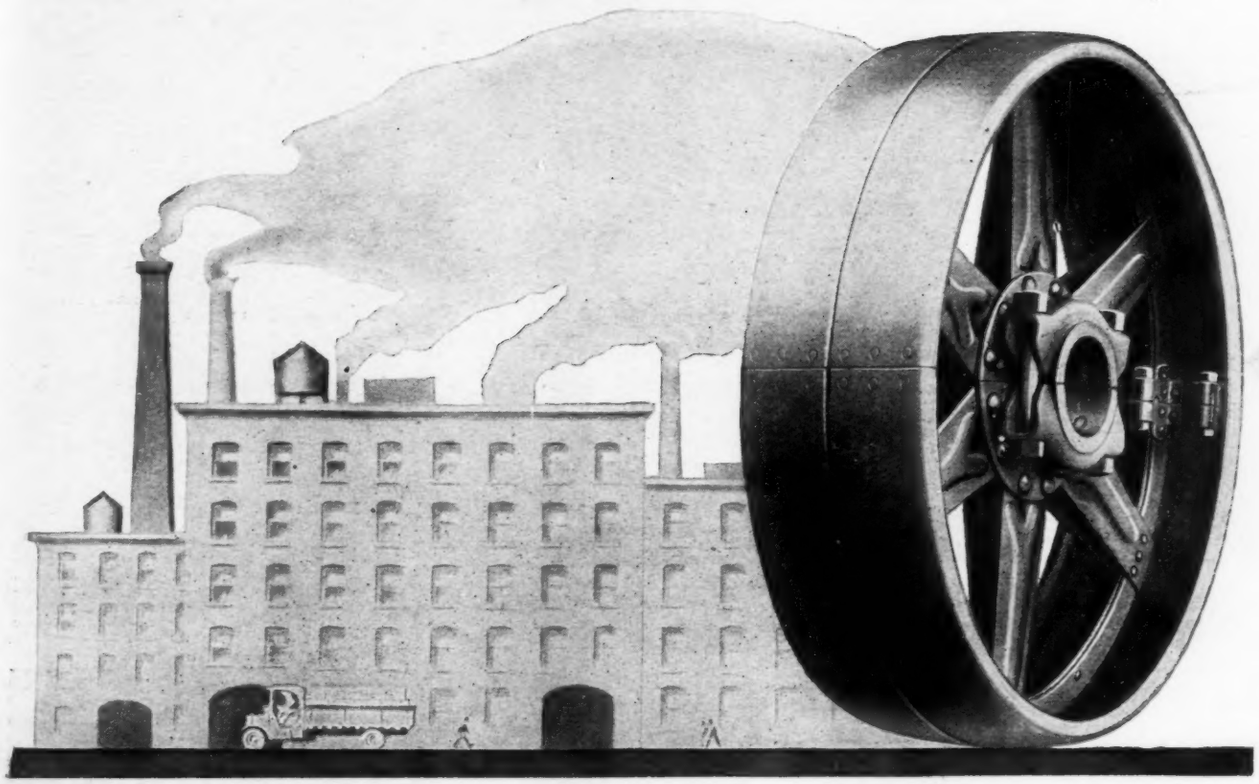
There is no better leather belt made than **"Turtle,"** the Original Waterproof Leather Belt with a service record of 59 years.



EDW. R. LADEW CO., INC.
GLEN COVE, NEW YORK, U.S.A.
Since 1835

Branches and Distributors in All Principal Cities of the World carry complete stocks. Look in your 'Phone Book for Local Address.

AP-30



How Much Do You Lose Each Year By Slipping Belts?

Many factories and mills are losing hundreds and even thousands of dollars a year through power losses and coal waste in the operation of their pulleys. This waste is due to belt slip and air fanning, which exists to an extent little recognized by the management.

AMERICAN STEEL SPLIT pulleys solve the problem of belt slip. They are guaranteed to reduce it to a minimum. They lengthen the life of the belt.

The face of the "American" Pulley has a high co-efficient of friction and grips the belt. The sharp edges of the arms are constructed to cut the air and reduce air fanning to the lowest possible degree. The air groove in the face o the Pulley helps to minimize belt slip.

American Steel Split Pulleys are manufactured to give maximum strength with minimum weight, checks transmission losses and transmit power with great efficiency. They are guaranteed for double belt service and recommended for rim speeds up to 6,000 feet per minute.

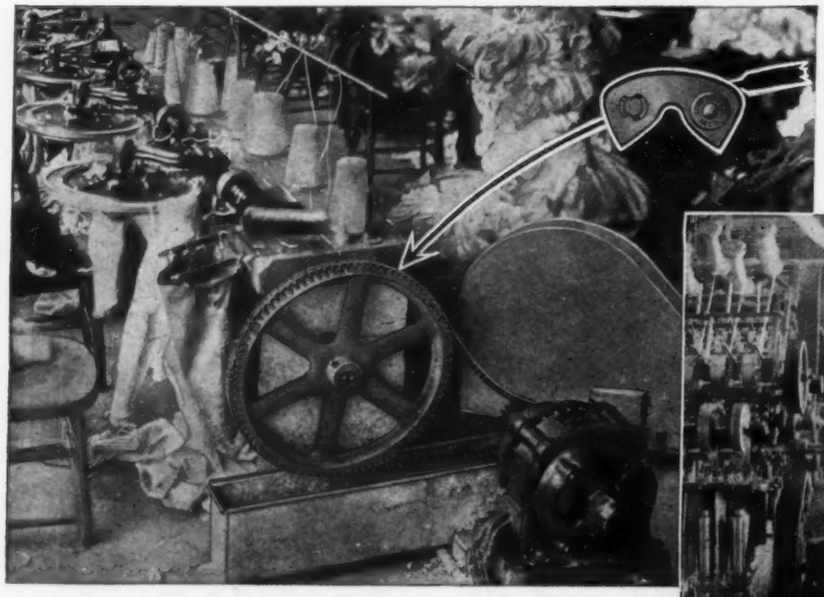
National Distribution through supply houses frem Parent Stocks in the larger cities.

Our book, "Getting Maximum Pulley Efficiency," will tell you how to effect transmission savings. Sent free on request.

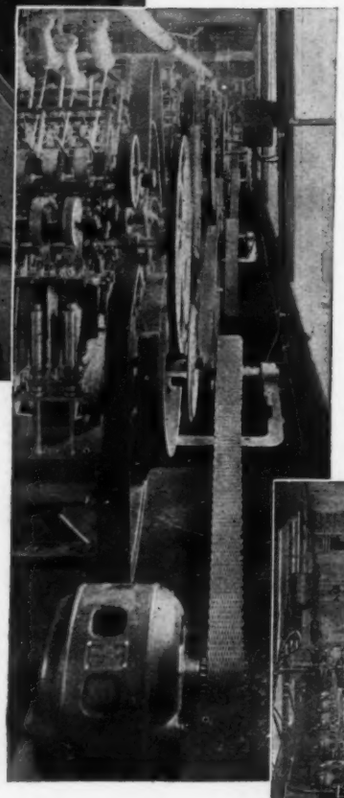
THE AMERICAN PULLEY COMPANY

PHILADELPHIA, PA.

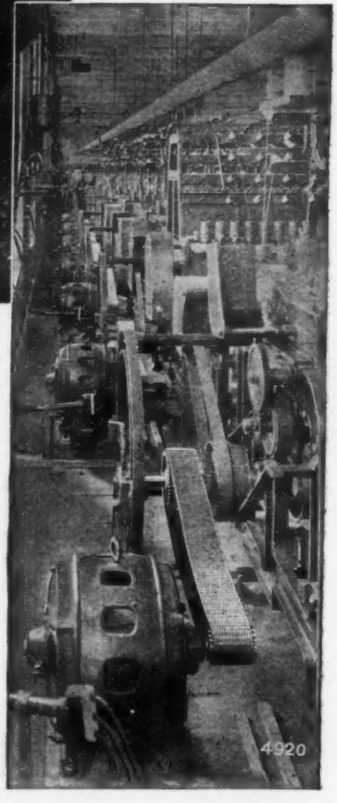
AMERICAN STEEL SPLIT PULLEYS



2 H. P. Link-Belt Silent Chain Drive driving 16 Loopers from G. E. Induction Motor. F. A. Patrick & Co., Duluth, Minn.



5 H. P. Link-Belt Silent Chain Drive Operating Spinning Frames. Speed of Chain, 1200 feet per minute.



7½ H. P. Link-Belt Silent Chain Drive Operating Twisting Frames. Speed of Chain, 1360 feet per minute.

Smooth-Running Drives Produce Uniformly-Perfect Products

IN the textile industry, a smooth, steady application of power is highly essential. A jerky intermittent drive, such as is generally experienced with slipping belts and worn gears, will not permit the production of a perfect product to say nothing of the reduced efficiency of the driven machine and loss of power.

That's why Link-Belt Silent Chain Drives are being adopted as the universal drive for textile machinery.

They deliver a steady, uniform, smooth "flow" of power from motor to machine. They never slip—can't. Permit short center drives and great speed reductions where desired—as high as 20 to 1 if necessary.

Link-Belt Silent Chain Drives are flexible. They cushion the load and protect the driven machine as well as driving medium against undue shock.

These drives have repeatedly been proven 98.2% efficient under actual tests. They are "flexible as a belt, positive as a gear, more efficient than either".

We will gladly have one of our engineers call and give you details and prices on the use of Link-Belt Silent Chain Drives in your mill. Write us. Ask for our Textile Drive Book No. 258.

LINK-BELT COMPANY

285

PHILADELPHIA		CHICAGO		INDIANAPOLIS	
New York	299 Broadway	Cleveland	429 Rockefeller Bldg.	San Francisco	582 Market St.
Boston	49 Federal St.	Detroit	932 Dime Bank Bldg.	Los Angeles	163 N. Los Angeles St.
Pittsburgh	1501 Park Bldg.	Minneapolis	418 S. Third St.	Toronto, Can.	Canadian Link-Belt Company, Ltd.
St. Louis	Cent. Nat'l Bank Bldg.	Kansas City, Mo.	306 Elmhurst Bldg.	Denver	Lindrooth, Shubart & Co., Boston Bldg.
Buffalo	547 Ellicott Square	Seattle	576 First Ave. S.	Louisville, Ky.	Frederick Webb, Starks Bldg.
Wilkes-Barre	2d Nat'l Bk. Bldg.	Portland, Ore.	First and Stark Sts.	New Orleans	C. O. Hins, Hibernia Bank Bldg.
		Charlotte, N. C.,	J. S. Cothran, Com'l Bank Bldg.		

LINK-BELT
SILENT CHAIN DRIVES

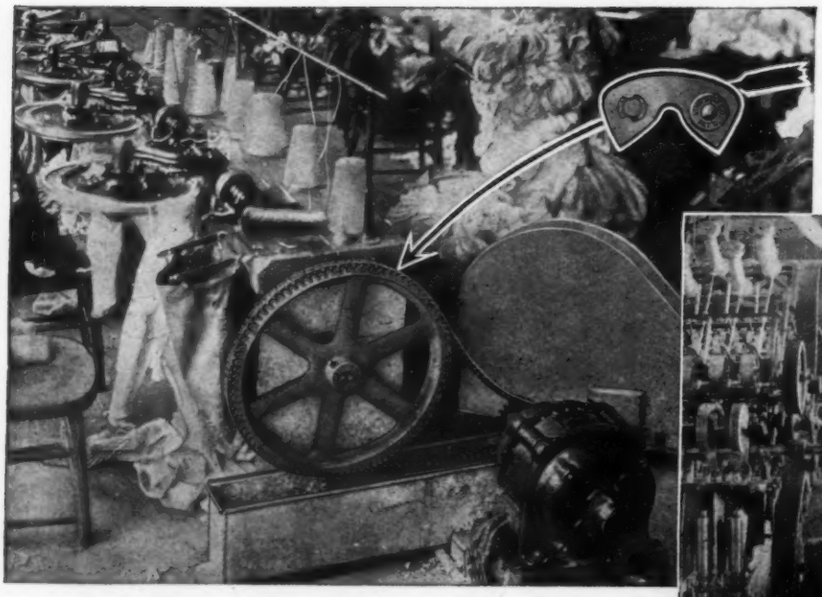
Strom BEARINGS

UTILITY. Wherever a shaft turns Strom Bearings are considered standard equipment. Their utility for every bearing use has been proved by the high character of their performance in machine shops, grain mills, motor trucks, tractors, airplanes, and in fact, wherever the demand has been for dependable bearing service.

U.S. Ball Bearing Mfg. Co.

(*Conrad Patent Licensee*)

Palmer Street and Kolmar Avenue, Chicago, Illinois



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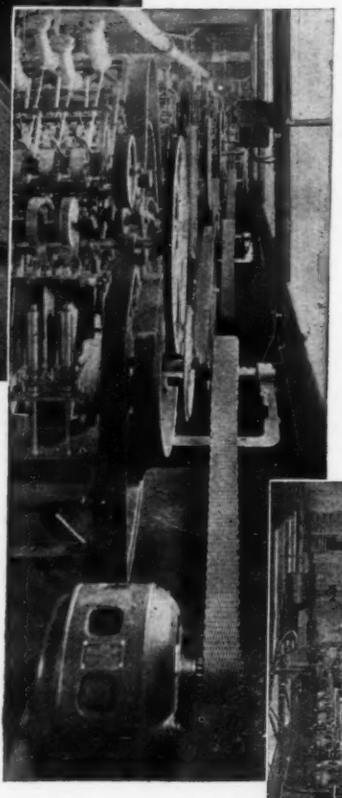

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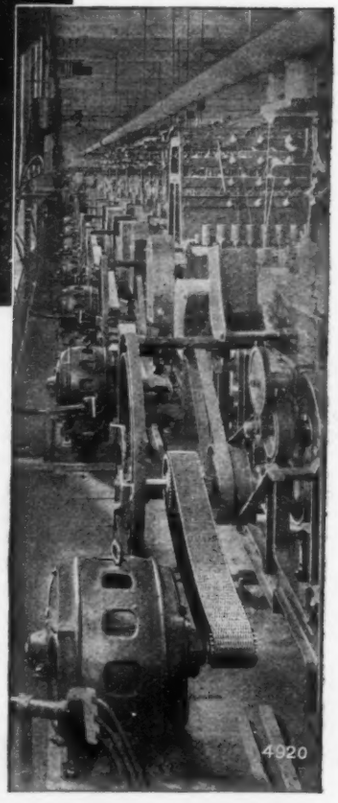

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LINK-BELT COMPANY

285

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Boston	49 Federal St.	Detroit	932 Dime Bank Bldg.	Los Angeles	163 N. Los Angeles St.
Pittsburgh	1501 Park Bldg.	Minneapolis	418 S. Third St.	Toronto, Can.	Canadian Link-Belt Company, Ltd.
St. Louis	Cent. Nat'l Bank Bldg.	Kansas City, Mo.	306 Elmhurst Bldg.	Denver	Lindrooth, Shubart & Co., Boston Bldg.
Buffalo	547 Ellicott Square	Seattle	576 First Ave. S.	Louisville, Ky.	Frederick Wehle, Starks Bldg.
Wilkes-Barre	3d Nat'l Bk. Bldg.	Portland, Ore.	First and Stark Sts.	New Orleans	C. O. Hinz, Hibernia Bank Bldg.
		Charlotte, N. C.,	J. S. Cothran, Com'l Bank Bldg.		

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SILENT CHAIN DRIVES

Strom BEARINGS

UTILITY. Wherever a shaft turns Strom Bearings are considered standard equipment. Their utility for every bearing use has been proved by the high character of their performance in machine shops, grain mills, motor trucks, tractors, airplanes, and in fact, wherever the demand has been for dependable bearing service.

U.S. Ball Bearing Mfg. Co.

(*Conrad Patent Licensee*)

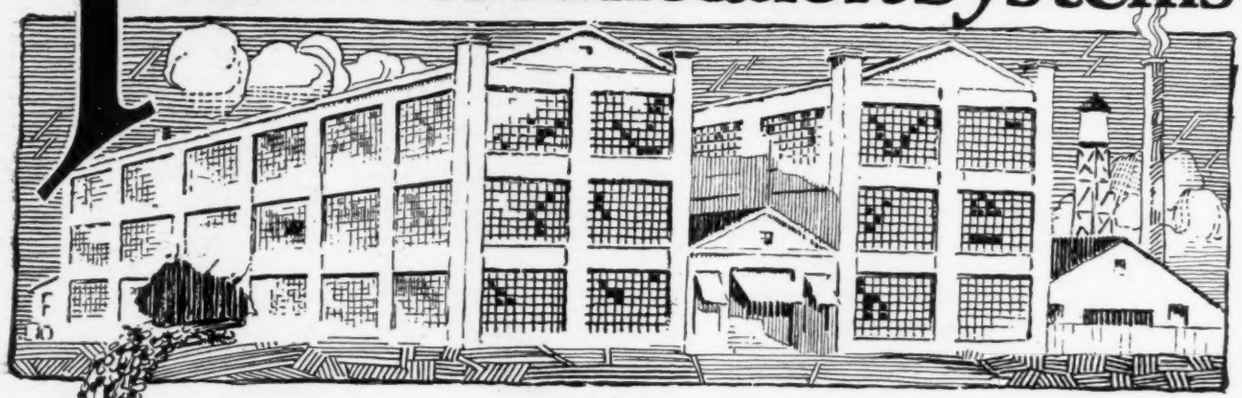
Palmer Street and Kolmar Avenue, Chicago, Illinois

"If it's a tool we've got it"
IN every line there is some one product of proved excellence to which all similar articles are compared—and by that comparison judged and valued.
We have compared and judged nearly every line of Small Tools and certain special machines on the market, and have sifted them all down until we have a stock of small tools and special machines that is unexcelled—the best at the best prices that are being quoted.
We now have what is unquestionably the most complete small tool stock in the South.
Specializing in small tools, we are able to give you a wide selection from the very best lines on the market, as quick service as can be given and the best prices that are being quoted.
And our prompt servce—when you want tools you want them quickly and there's where we can serve you with speed. Your order, no matter how small or large, will be shipped the same day received.
"If it's a tool we've got it." That's our claim; and if you look through our 500 page illustrated catalog, which is yours for the asking, you will be convinced that this claim is a very conservative one.
May We Serve You?
PASCO TOOL CO.
10 N. Broad St. ATLANTA GA.

Permutit

TRADE MARK

Water Rectification Systems



Stop a Serious Leak in Mill Profits.

You'd stop leaks in a steam pipe, or a water pipe, mighty quick. But how about the leaks in your mill profits that hard water is causing—losses due to excessive soap and dye consumption, poor colors, spoiled goods, redyeing, high fuel costs. **Profits are leaking away** there—though they may not show. **Stop this leak**—by standardizing your plant on soft water.

"PERMUTIT" will stop that leak—the water softener that will take away all the quality-reducing, cost-increasing hard water troubles. And don't take our word for it, merely. Ask managers of **"PERMUTIT"**-equipped mills—**THEY KNOW.** If you don't know who they are ask us. **They're among the leaders in the industry—known for the quality of their goods.** They've proved that **PERMUTIT"** pays. You'll find that true, too.

The Permutit Company

440 Fourth Ave. **New York**

Water Softners **Iron Removal Apparatus**

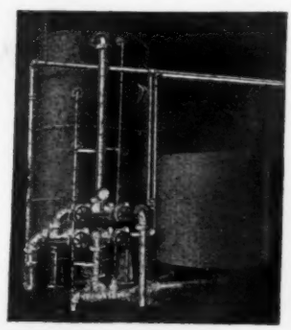
Filters and Filtration Equipment.

BRANCH OFFICES

Philadelphia, Pa., 311 Widener Building; Buffalo, N. Y., 304 Brisbane Building; Syracuse, N. Y., 1433 East Genesee Street; Pittsburgh, Pa., 921 Union Arcade Building; Chicago, Ill., 208 South La Salle Street; Kansas City, Mo., 401 Lathrop Building; Minneapolis, Minn., 1046 McKnight Building; Jacksonville, Fla., P. O. Box 604; Los Angeles, Cal., 1141 Citizens National Bank Bldg.

AGENTS

Boston, Mass., Starkweather and Broadhurst, 53 State Street; St. Louis, Mo., Reeves & Skinner Machy. Co., 2211 Olive Street; Hamilton, Ontario, Canada, W. J. Westaway 5 Sun Life Bldg.



REFINITE
RIVAL OF THE CLOUDS

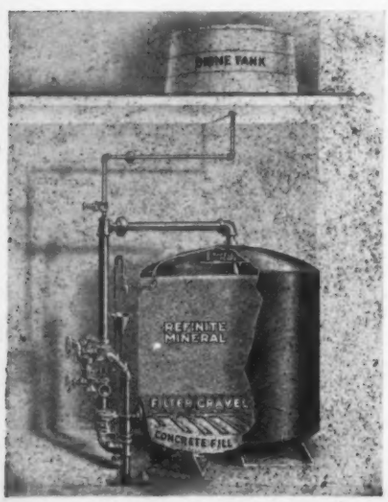
Perfect Soft Water Takes the Gloom Out of the Loom

Said the Superintendent of a leading textile mill:

"We found that practically every stop to repair a break in yarn—and there were a lot of them—was a good reason for Refinite.

"With Refinite soft water there is no gummy soap curd to mat the skeins; no fibre-weakening caustics are needed. The yarn is so much stronger and so much more elastic and pliable that we not only have much less breakage but considerably increased yardage.

"Best of all, our dyeing formulas act with regularity—giving even penetration, without streaks or spots. Almost no redyeing. Matching colors is now easy, and, needless to add, our products have a decidedly improved feel."



Nature's Water Softener

Nature herself gives to Refinite mineral its wonderful water softening properties. Nature makes no mistakes. Refinite's action is dependable and uniform, delivering water of no hardness *all the time.*

A Refinite Softener will help you eliminate production losses. There's a size to suit your needs. It will occupy little space, expert supervision will not be necessary, the price will be very reasonable, and the cost of operation will be lowest for the volume of Perfect Soft Water delivered.

Let us give you full particulars. Write, wire or telephone our nearest office. No obligation.

THE REFINITE CO., Refinite Bldg., OMAHA, NEB.

DISTRICT OFFICES

NEW YORK, 9 E. Fortieth St.
TORONTO, 23 Scott St.
ATLANTA, 320 Hurt Bldg.
CINCINNATI, 412 Traction Bldg.
KANSAS CITY, 611 Grand Ave. Temple
SPOKANE, 1015 Old Natl. Bank Bldg.
CHICAGO, 1620 Conway Bldg.
MINNEAPOLIS, 703 Plymouth Bldg.
SAN FRANCISCO, 419 Call Bldg.
PUEBLO, Thatcher Bldg.
LOS ANGELES, 303 Story Bldg.
BUFFALO, 424 White Bldg.
SALT LAKE CITY, 524 Newhouse Bldg.

DOES VENTILATION PAY?

That depends upon the system of ventilating you select, its initial cost, the up-keep cost, how you figure the ultimate costs, and the percentage of efficiency.

I. The system should be designed for your needs by trained Engineers, specializing in ventilation.

II. Its initial cost is determined by the particular problem you have. Any system which does not fit your requirements is dear at any price. It should be designed to handle your problem with the least possible outlay of capital. To be sure of that, you gamble needlessly unless you take advantage of our Sixty years of experience, and of the services of our trained Engineering Staff.

III. To figure ultimate costs is difficult. See how the Hamilton Watch Co., of Lancaster, Pa. figure it; Here is their plant:

GENTLEMEN:—We sent you an order for another 20-inch Ventilator today: this makes twenty-eight Auto-force Ventilating pumps which we have purchased from you, twenty-seven of which are doing such splendid work, and we feel sure the other will do the same. It might be of interest to you to know that we installed this system at a total cost of approximately $2800.00, about $100.00 per machine, and if the cost were $28,000.00 we would not be without it.

We regard it as a most valuable addition to our business, which is proven in many ways: the health of our employees, numbering 785, is very much improved over other years, and the Relief Association has made no assessments and has had very few sick benefits to pay, and it has done away with much rust.

I offer you this for the good of both yourselves and any other factory who desires to equip themselves with this really valuable appliance to their business.

Wishing you every possible success, we remain, etc.

Hamilton Watch Co.

IV. **Sturtevant** AUTOFORCE VENTILATORS use Nature as the source of energy, so you have no operating cost. We guarantee their efficiency which is 100% to 200% in excess of any other type of natural ventilator.

Our Engineering Staff will analyze your conditions and recommend a solution, all without obligation to you. Would this not be valuable information to have? Just drop us a line.

B. F. STURTEVANT COMPANY

Hyde Park, Boston, Massachusetts.

AND ALL PRINCIPAL CITIES

Saves Dollars

Thousands of dollars saved annually by Cyclone Fence, gives extra cash for use in your business.

An automobile manufacturer reduced his watchmen from twenty to one after erecting Cyclone Fence, saving approximately twenty-thousand dollars a year besides getting nineteen more factory workers. Name furnished on request.

Cyclone Fence works like a paid-up insurance policy; dollar-saving protection is permanent. Reduces insurance rates on industrial risks. Without Cyclone Fence, you are paying its cost and more, in leaks and losses you can't trace.

In the Textile Industry, Cyclone Fence is the standard system of Property Protection. Around your plant it saves its cost quickly and continues to save dollars every year. Practical for any property protection need.

Our engineers will solve your fencing problems.
Illustrated catalog gladly mailed.
Phone, wire or write main offices at Waukegan, Illinois, or branch offices nearest you

CYCLONE FENCE COMPANY

Factories: Waukegan, Illinois Cleveland, Ohio
Branch Offices: Chicago, Detroit, Rochester, Philadelphia
New York City, Oakland, Calif., Portland, Ore., San Francisco

OTHER CYCLONE PRODUCTS ARE:

Chain Link Fabrics
Conveyor Wire Belting
Ornamental Lawn Fence
Ornamental & Farm Gates
Flower Guard & Trellis
Interior Partition Work
Window & Skylight Guards
Flexible Steel Matting
Industrial Housing Fence
Wire Work of All Kinds

Now made in
STOCK and STANDARD Sizes

Immediate delivery on Stock sizes. **Early** delivery on Standard sizes.

Owing to the economies of quantity manufacture, we can quote very attractive prices on these classes of sash. Improved appearance, with Lupton quality, fully maintained, mark the new details.

Send for Catalogue 10-LSS just issued, and note **important changes in dimensions.**

Stock Sash are carried fully assembled, in our Philadelphia, Cleveland and Detroit warehouses.

Standard Sash are stocked at the factory in the form of cut bars, ready for assembling.

DAVID LUPTON'S SONS COMPANY

Amber St. and Allegheny Ave. **Philadelphia, Pa.**

Makers of Modern equipment for daylight and natural ventilation.

Canadian Manufacturers: The A. B. Ormsby Co , Ltd., Toronto.

Lupton
Lupton Steel Sash
Pivoted Factory Type
Counterbalanced Type
Pond Continuous Sash
for sawtooths, monitors and side walls
Pond Operating Device
for long lines of sash
Lupton Rolled Steel Skylight
"INVESTMENT VALUE"

Lupton
INVESTMENT VALUE

AT this time when so many of our clients are extending their plants, we also are doubling our facilities and adding new features to materially improve our service.

SERVICE

J · E · SIRRINE

ENGINEER

GREENVILLE · SOUTH · CAROLINA

Industrial Housing

QUICK SHIPMENT

A Train Load of ALADDIN Houses Per Day

Depending upon size of house, we load from one to three complete houses in each car. Normally, shipments arrive at Atlantic Coast points in about six days after leaving our mill.

QUICK RESULTS

A Gang of 120 Men Can Erect 10 ALADDIN 5-Room Houses Per Day

Aladdin Houses are Readi-Cut. Every piece of material, joists, studs, rafters, sheathing, siding, flooring, interior finish, is cut to proper size, marked and numbered and ready to nail in place.

SERVICE PLUS

Immediate Action on Any City Project—or Any Housing Problem

Our plans are drawn, prepared and finished for cities of from 300 to 3,000 poulation. Experienced town planners, landscape achitects, engineers and builders have spent months of study and work in their production. This service becomes a part of every Aladdin Housing transaction—a single house or a complete city.

Over One Thousand ALADDIN Houses Carried in Stock

All lumber, shingles, lath, millwork, siding, flooring, interior finish, plaster, hardware, paints, nails, are carried constantly in stock, ready for instant shipment.

Hundreds of American Corporations Have Built ALADDIN Houses

As many as five hundred Aladdin houses have been sold to a single corporation. Re-orders are constantly received from corporations who have tested our houses by actual purchase and erection.

A Single House—or A Complete City

The Aladdin Company will quote you a definite price on a single house or complete cities of 300, 500, 600, 1,000, 1,500 and 3,000 population. These cities are now listed in our book on Industrial Houses. Cities include homes, stores, churches, schools municipal buildings, water distributing systems, electric light plants and distribution, sewerage systems, trees, etc. "Book of Aladdin Homes" No. 620 with full information, floor plans and prices will be mailed on request. Aladdin Book "Industrial Housing" mailed only to inquiries written on business or official stationery.

Complete Cities

-or a Single House

ALADDIN READI-CUT HOUSES Sold By The GOLDEN RULE

The Aladdin Co.

621 SOVEREIGN AVE., HOME BUILDERS TO THE NATION TOWNBUILDERS TO THE NATION HATTIESBURG, MISS.

YOU want greater efficiency—better working conditions for your employees—greater production—you want a mill white that does not turn yellow and that lasts for years—in short, you want Pee Gee Factrilite.

This "100 Point Mill White" helps to utilize every ray of light that enters your mill, thereby increasing the working hours by daylight and decreasing the use of artificial light.

Pee Gee FACTRILITE
LIQUID DAYLIGHT

For Interior Walls and Ceilings of Mills

Pee Gee Factrilite is made by our own perfected process of especially prepared white pigments and long oil, therefore it will not turn yellow like ordinary paints which contain lead and varnish.

It is an economical paint because it is Washable, Durable, Germ and Moisture Proof. Saves the expense of frequent repainting, does not peel or crack and withstands the vibration of heavy machinery.

Pee Gee Factrilite spreads freely and is easily applied on wood, plaster, stone brick or metal surfaces, having a covering capacity of 450 to 550 square feet per gallon. It is made in gloss enamel or eggshell finish.

We Supervise the Job at our expense. Write for Sample Board

Other Pee Gee Industrial Paints

Pee Gee UTILITY RED OXIDE
For Warehouses and Outbuildings

Pee Gee PORTLANITE
For Cement, Concrete and Brick

Pee Gee CREO-STAIN
For Shingle Roofs and Rough Buildings

Pee Gee MILL VILLAGE PAINT
For Exteriors and Interiors

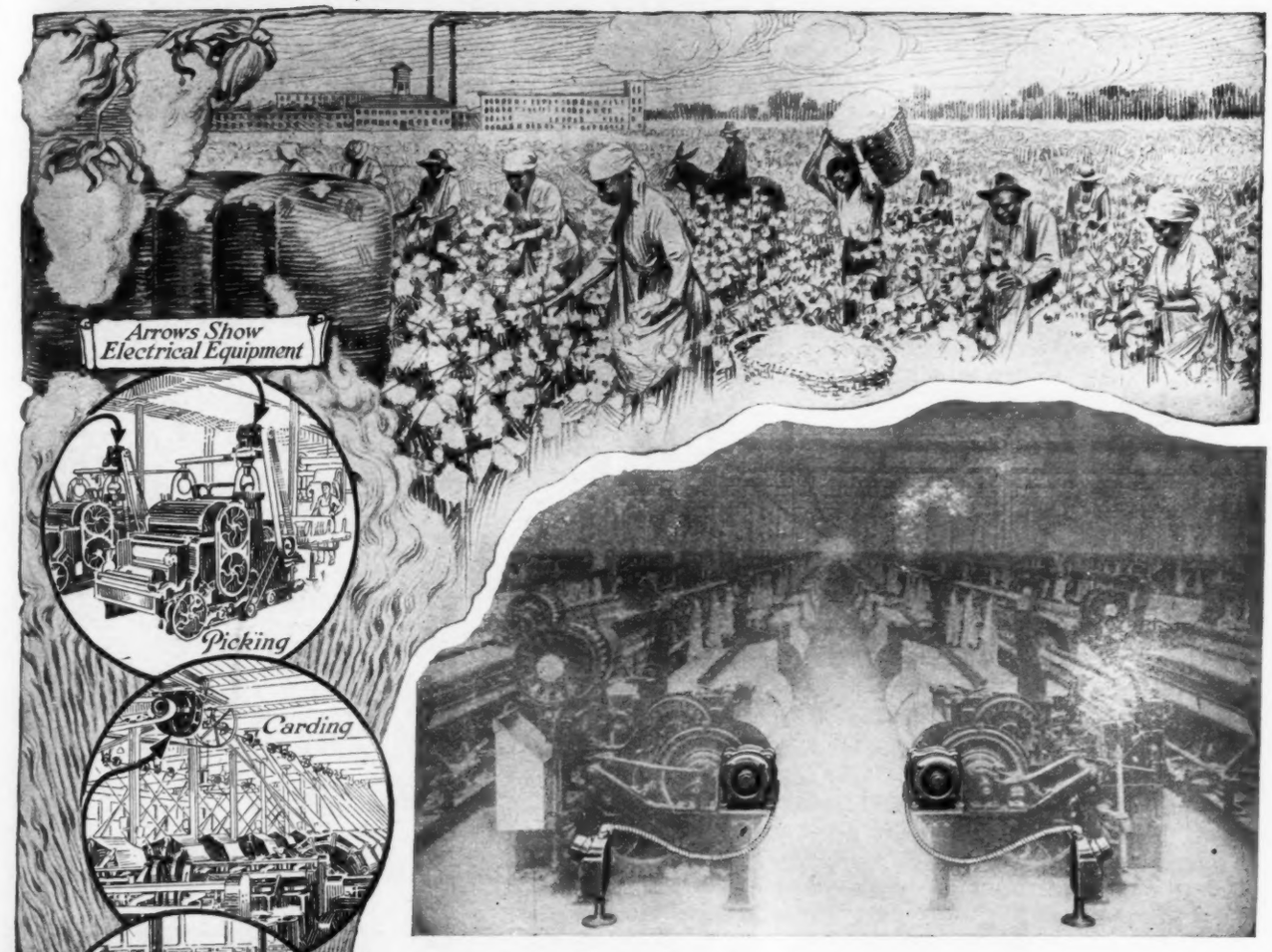
Pee Gee DREADNAUGHT BLACK
For Metal Surfaces

Pee Gee FIROFEND
Fire Retardant Paint

Write today for booklet on "Pee Gee Industrial Paints"

PEASLEE-GAULBERT COMPANY, Inc.

Paint Grinders—Varnish Makers Established 1867 LOUISVILLE, KENTUCKY



7½-Acres of Looms Driven by G-E Motors, Naumkeag Steam Cotton Co., Salem, Mass.

Electric Power from G-E Motors Has Splendid Service Record

Increased production of higher quality goods at least power cost is obtained throughout mills equipped with G-E motor drive.

In the weave room these advantages are singularly evident. Thousands of G-E motors have been used for several years at the Naumkeag Steam Cotton Company, Salem, Mass., and only a little trouble was experienced with one motor.

With G-E motor drive one story can be saved in loom shed and great flexibility in arrangement of machinery and building obtained. There is freedom from fly and dust, and it is easy to quickly measure the power consumption of any machine to detect and stop waste.

The lessened liability of serious shutdowns and reduced maintenance expense of transmission equipment and looms, as well as the better natural lighting possible, and greater safety to employees obtained with this drive, are features which appeal to users.

Our specialists will be pleased to show you many other reasons why a G-E motor pays large dividends to the user.

General Office: Schenectady. N. Y.
Mill Power Dept.: Boston, Mass.

44-9

GENERAL ELECTRIC COMPANY

Don't Order just "Fuses"—SPECIFY

ECONOMY
renewable FUSES

There are two mighty good reasons for this—

First—You want the utmost in electrical protection.

Second—You want it at the least possible cost.

And that's just what you get in the Economy Fuse.

Years of performance prove that you can safely depend on it for accuracy of rating and all-around efficiency of operation.

An inexpensive "Drop Out" Renewal Link restores a blown Economy Fuse to its original efficiency. As compared with the use of one-time fuses, Economy Fuses and "Drop-Out" Renewal Links cut annual fuse maintenance costs 80%

Sold by all electrical dealers and jobbers.

Write for Catalog 12

ECONOMY FUSE & MFG. CO.
Kinzie and Orleans St., CHICAGO, U. S. A.

Sole Manufacturers of "ARKLESS"—the Non-Renewable Fuses with the 100 per cent. Guaranteed Indicator.

ECONOMY FUSES ARE ALSO MADE IN CANADA AT MONTREAL

DOGWOOD
(AND PERSIMMON) SHUTTLES

For All Kinds of

AUTOMATIC LOOMS

Send Sample for Counter Sample

Shambow Shuttle Co.
Woonsocket, R. I.

Card Cylinder Brush

FELCO

Cylinder Brushes

are made of superior quality materials by superior workmen with the result that they stand the use and abuse of long and severe service.

We have a department devoted to the repairing and refilling of brushes, and the same expert knowledge and workmanship used in the manufacture of FELTON BRUSHES goes into such repair work. We can serve you promptly and efficiently.

There is a FELTON Brush for every use at the lowest price consistent with the high standard of quality.

Comber Cylinder Brush

Write for prices on any new brush you desire, or brush repair work

D. D. Felton Brush Co., Atlanta, Ga.
S. A. Felton & Sons Co., Manchester, N. H.
Manufacturers and Repairers of all Kinds of Brushes.

COTTON

Published Monthly by

W. R. C. Smith Publishing Co., Dalton and Atlanta, Ga.

L. L. ARNOLD, Editor.

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Orders for any change in advertising must reach Atlanta previous to the tenth of the month preceding month of issue, otherwise publishers cannot be responsible for changes.

When changing address, notify us, not the postmaster. Always give the old address as well as the new one.

Member Associated Business Papers, Inc.

Member Audit Bureau of Circulation.

This Issue 5000 Copies.

Volume 83. Number 10

MID-SUMMER ADVERTISING.

"Some concerns which do a lot of advertising cut out their announcements in July and August, on the theory that the productiveness of the space is less in those months.

Where the list is fairly long, the apparent saving thus secured seems to be worth while.

Advertisers who figure that they are making money by dropping out of midsummer issues ought to take a trip into the factories or stores of their customers. They will find people on the job, business going ahead, purchases being made.

Some folks are likely to be on vacations when any given issue comes out, but it is a well-known fact that back numbers of trade and technical papers are regularly referred to when the absent member gets back on the job. And in the meantime his understudy is usually not overlooking any bets, and gets up to date through the current business papers.

The business is there in the summer just as it is at other seasons, and the idea of dropping from 100 per cent to zero during that period is as illogical as it is unnecessary."

The good logic of the above editorial, appearing in the July issue of "Class," is more than borne out by the conditions now existing in the textile field. In a recent talk with the writer, the manager of the Southern office of a large Northern manufacturer of textile machinery remarked:

"It has been seldom during the past three months that I have been able to clear my desk—more inquiries and orders for machinery are coming to us than we can possibly handle."

This is a condition not confined to one or two manufacturers but general throughout the trade. The distinct pause expected by many during the summer period has shown no sign of appearance. Reports from all angles of the industry show an absence of any seasonal halting, a continuance of expansion on a widespread scope. New records in magnitude of sales and in prices are not uncommon.

The manufacturer, who is keeping his products constantly before the trade, who is keeping in close contact with the field, is making new records for the summer months, records that surpass in many cases the records of any previous months of the year.

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ADVERTISING AND DISTRIBUTION.

The question of whether advertising should come first or whether suitable distributors should be secured in the territory before the advertising is started, is one that is often discussed, and is a problem with which many manufacturers frequently find themselves confronted.

The writer had occasion recently to talk with a Southern manufacturers' agent with regard to his taking on a new line. There were two manufacturers desiring to secure the agent. Their machines were designed to do the same work, both were apparently of similar quality and construction and about equal in price. The one manufacturer was advertising in good space in the journal reaching the agent's possible customers. The other was not represented.

However, the agent wrote both companies. The first sent him an attractive catalogue, well printed, giving full particulars of their line. From the second he received two or three little circulars. The second company may have been the larger, may even have had the better product, but it was evident from which company he could expect the best support. It is needless to say which line he selected.

The company that is advertising in the field naturally makes the best impression on the possible distributor. It is the general opinion among manufacturers that advertising and securing of distributors should go hand in hand, both working simultaneously to get the best results in the shortest time possible.

SCALE REMOVAL EASY

The antiquated, time-consuming, expensive method of removing scale with a hammer and chisel is unknown when boilers are treated with

DIXON'S
PIONEER
BOILER GRAPHITE

It makes no difference whether the feed water is good or bad. Dixon's Boiler Graphite (fine flakes) acts upon the scale physically—not chemically—breaks up the cohesion between the particles of scale and their grip on the boiler tubes and sheets—in fact, makes scale easy to remove.

Do not confuse Dixon's Boiler Graphite with other boiler graphite. Write for Booklet No. 34-T. It will show you how to lower your cleaning costs.

Made in JERSEY CITY, N. J., by

JOSEPH DIXON CRUCIBLE COMPANY

Established 1827.

SETTEES

AND SWINGS FOR PLAYGROUNDS and PARKS

LOW PRICES QUICK SHIPMENTS

We also manufacture Wire and Iron Window Guards, Stall Guards, Hay Racks, Oat Mangers, Etc.

DOW WIRE & IRON WORKS
INCORPORATED
LOUISVILLE, KY.

GARLAND

LOOM
HARNESSES

Weave Well and Wear Well

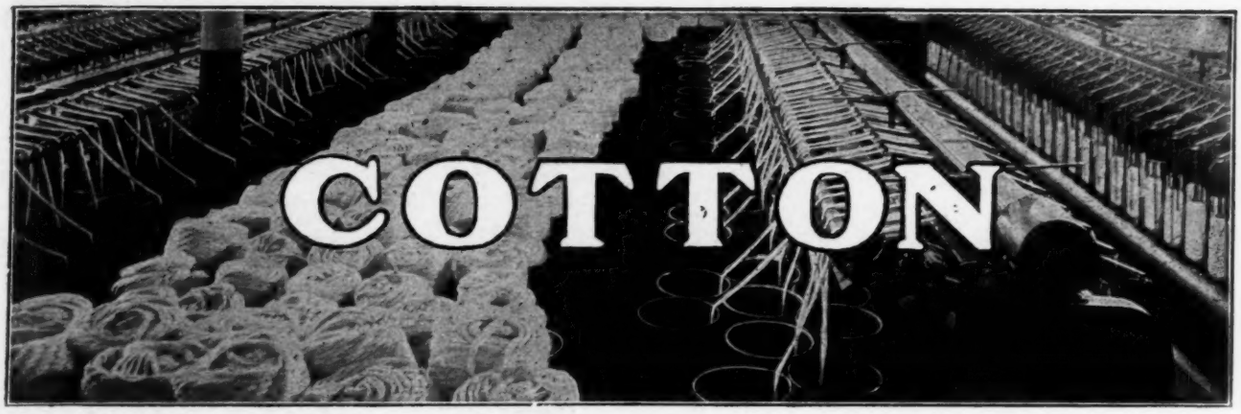
The smooth finish of our loom harnesses causes them to weave well because the friction of the warp is reduced to a minimum, and the softness and pliability of the finish make them wear well because the harness is tough and elastic and not brittle.

G
TRADE MARK

GARLAND MFG. CO.
SACO, MAINE

JORDAN MANUFACTURING CO.
BOBBIN MAKERS

Home Office and Plant No. 1
MONTICELLO, GEORGIA.



August, Nineteen-Nineteen

Facts About the Coal Situation.

The power end of cotton manufacturing is usually looked upon as a comparatively unimportant feature—a necessary evil. Particularly is this the case in mills that have been in operation for years with little or no worry from the power end except the payment of the necessary costs accruing. The shortage of coal and the overburdened transportation facilities during wartime rather rudely disturbed the repose of some of these mill managers. A number of them sought to obviate future trouble of this character by contracting for central station electric power, thereby putting their power problems up to the central station people. But a shortage of water developed at a most inopportune time, causing lessened production and more worry. This has resulted in the equipment of "stand by" plants in most cases, so that the majority of the mills are once more on a coal basis.

Just at the present time the coal outlook is not encouraging and wise manufacturers who have investigated the situation are buying all they have room to store, preferring to pay the interest on the money so invested rather than run any chances of a possible shut down during the winter months. There are several reasons for this viewpoint which are well worthy of the consideration of coal users.

One of the primary causes for trouble is the labor situation. In the North the most of the coal miners are foreigners. With accumulations laid aside from the high wages they have been making, the close of the war raised among many of them a desire to visit their old homes, which has caused an exodus to Europe.

In the southern coal fields the negro worker predominates, but among all classes there is a tendency to loaf one or two days each week, and the present high wage scales makes them financially able to do this. The result is a production shortage that any excess demand accentuates. The possibility of an excess demand for export purposes will be taken up more fully in a later paragraph.

Another cloud on the mine delivery horizon is a new union demand that is being prepared for presentation to southern mine operators. This is expected to materialize about January and is understood to include, in addition to wage increases, a thirty-hour week and an agreement on the part of the operators to deduct a certain specified sum weekly from the pay of each operative employed to be paid to the union as dues. A collect at the source proposition.

The transportation situation is another serious factor in coal distribution. Even before the big crop movement begins, there is a shortage of rolling stock and it is pointed out that on some roads the Railroad Administration has laid off the shopmen and is not keeping up the usual repairs on the cars. Presumably this is from motives of economy, but the result is likely to prove disastrous to coal users dependent on such cars for service.

It is also stated that new rates for all freight is to be adopted, showing an advance of something like 15 per cent. While this would increase the cost, it would have little or no effect on deliveries.

Because of the uncertain outlook at the mines, southern operators are declining to contract for coal deliveries at a price for more than 30 days in most instances, thus bringing another variable factor into the problem.

After giving due consideration to these domestic conditions, a brief glance at the foreign situation will show the possibilities of excess demand. Richard Spillane, in a recent issue of Commerce and Finance, presents this side of the problem so succinctly that the following extracts are quoted:

> "Against our highest production of approximately 700,000,000 tons anthracite and bituminous the highest production of Great Britain has been approximately 285,000,000 tons bituminous. Normally the British exported about 80,000,000 tons. Great Britain is dotted with coal fields. Cardiff, Newcastle and a few other centers are famous for their excellent steam coals.
>
> "In the war period the British Government did as we did to stimulate production. The coal administrator raised miners' wages again and again, but despite his best efforts production declined from about 285,000,000 to about 217,000,000 tons a year. One reason was that so many miners were drawn into the army that the mine forces deteriorated. Another is that the miner showed more and more discontent with his living conditions and his work.
>
> "A commission was appointed to investigate the mine situation. It was headed by Justice Sankey. Its inquiry covered every feature of the subject: wages, material costs, housing of workers, costs of living, variation in costs of operating different mines, profits of mine operators, profits of land owners, causes of reduced production, etc. It examined all kinds of witnesses from miners to dukes.
>
> "The committee has reported. It has split on many minor issues, but it recommends nationalization of coal lands. What compensation the land owners should get is not suggested.
>
> "The committee also settled a long controversy with the miners' union by agreeing to a 7-hour work day

and agreeing to have the government take up the question of a 6-hour day in 1921.

"So far as an outsider can judge the miners got all the plums. Possibly the action of the committee was influenced not so much by the justice of any demand of the men as the evidence of selfishness and brutality of mine operator and land owner throughout the war. Added to this, it may have been appreciated that the position of labor has become so strong as a consequence of the war that it would be unwise to provoke a conflict. What is more, England was in such urgent need of coal that a general strike threatened to paralyze reconstruction.

"The Sankey commission cannot be said to have done a good job except in laying bare the sore spots. The coal situation has not improved but grown worse. At the latest reports production was down to an average of 205 tons per annum per man. Coal at the mine mouth in Wales and Newcastle was more than $7 a ton. It was selling at more than $10 a ton in London, Birmingham and Liverpool and $15 a ton in Dublin. And it was going up. In various cities the coal shortage was pronounced, so much so as to cause rationing.

"Pocahontas coal, the equivalent of Cardiff steam coal, sells at the mine mouth in America at $2.75 a ton.

"The United States can lay coal down in any port of South or Central America or any port of Spain or the Mediterranean cheaper than can the British. It is acknowledged by the British that willy nilly they must curtail their exports of coal. They must protect their manufacturing industry. Every shilling advance in coal means 4 shillings advance in the cost of steel making. And it operates likewise in various other industries. Today America is selling steel in Great Britain at considerably lower prices than the British can manufacture it.

"But the coal problem is much deeper and more significant to Great Britain than is evidenced in the costs of steel and other manufactures. Coal has been the bulwark of British power at sea. The British coaling stations are in all the Seven Seas. Any British vessel always could get a cargo of coal out from Britain. That meant much in cheap freights. Now, if the British are not to export much coal their shipping will be handicapped. It will mean that the stuff imported into England may have to pay a higher freight than if exports balanced imports and kept vessels profitably employed both ways.

"Bad as the coal situation is in England, it is much worse on the Continent and in Scandinavia. In Sweden coal is at an almost prohibitive price. It is so, too, in parts of Germany. France has not gotten control of the situation, either, in the Saar basin, awarded her in compensation for her destroyed mines.

"America could sell 10,000,000 tons of coal today in Europe, Africa and South America if she could deliver them. She should fall heir to a large part of the 80,000,000 tons of export coal trade formerly done by the British."

Since this article on the foreign situation was written, British coal miners have struck, practically tying up all production. While this disagreement will doubtless be settled, at least temporarily, before these lines reach the eyes of the reader, still it must be remembered that each day of stoppage increases the shortage abroad and only a lack of ships prevents many millions of tons of American coal being immediately diverted to foreign fields.

Coal will undoubtedly be higher. It is also going to be hard to secure in sufficient quantities at any price a little later.

Trading with China.

"Three basic elements govern the Chinese business—personality, education, and honesty. Regarding the first, your representative in China must be a man of education and tact. The quality of aggressiveness which makes for success in the United States must be toned down in dealings with the chinese, a dignified race who abhor the breeziness of a certain type of salesman. On the other hand they have a profound reverence for a man of learning, and, if he is familiar with their customs, business relations will proceed smoothly and profitably.

"Thus the fundamentals of the Chinese character to which the American manufacturer and exporter must adjust their plans if they would sell their products in China are summed up in a new booklet, 'Trading with China,' which the Guaranty Trust Company of New York has just issued. The booklet contains specific and valuable information regarding such vital matters as preparing for a selling campaign in China; packing and advertising for the Chinese market; customs and shipping documents; articles urgently needed in China; what American business interests should avoid in that country; combinations which are successful in China, etc.

"An outstanding feature of the Chinese character is his commercial honor, and he demands an equally high standard from the foreigner," the booklet sets forth. One deviation from absolute integrity on the part of your representative would probably destroy your business in China. The Chinese merchant is noted for liberality in all his dealings, is tenacious to all that is material, with comparative disregard for trifles, never letting a transaction fall through on account of punctilio, yielding to the prejudices of others wherever it can be done without material disadvantage. Judicial procedure being an abomination to respectable Chinese, their security in commercial dealings is based as much upon reason, good faith, and non-repudiation as is that of western nations upon verbal finesse in the construction of contracts.

"Your representatives should be required to study Chinese, and their progress should be tested by bi-weekly oral examinations and monthly written tests. Those showing aptitude should be encouraged to higher Chinese studies and, as an incentive to all, a bonus might be given those who, by test examination, show that they have attained a fixed standard. The bonus given by some British firms amounts to $500.

"While personal contact with the Chinese by your representative in the field should be encouraged and facilitated in every possible manner, and the study of the language insisted upon in case of permanent resident representatives, the most important factor of your Chinese business will be the compradore. There is no more remarkable figure in the history of commerce than the compradore of China, who discharges duties of large trust with almost uniform fidelity. In the early days of European trade with China the compradore was somewhat of a combined interpretor and steward, to whom was committed the business of bargaining with the natives on small matters, but by degrees the compradore has grown to influence until now he is practically indispensable.

"Determination of a purchaser's credit is, in China, a well-nigh impossible task to a foreigner. Of course, prominent, active, and honest Chinese firms in the treaty ports have a standing and credit known to all; but when the prospective customer hails from the interior, as is often the case, the fixing of his reliability is beyond the power of the ordinary foreign trader. Because of this situation the 'compradore' exists in all foreign firms in China."

Saving Time and Increasing Efficiency

Recent government census figures on consumption of American cotton indicate the need of higher efficiency in production, either of machinery, of men or of both. The figures for May are significant. The number of spindles operating in that month was 33,556,011 and the consumption 487,998 bales. The active spindles in May, 1918, numbered 33,720,555 and these consumed 575,862 bales. The comparison brings to light a great discrepancy in production. The decrease for May this year from the same month last year in number of spindles active is under five per cent. On the other hand, the decrease in consumption for May, 1919, from the total a year previous is nearly 15¼ per cent.

In view of the general reduction of working hours in the cotton mill industry of the country, anything which will tend to increase production must be considered of timely interest. Two things have transpired in New England lately which are significant in this connection. One of them is a meeting in the interest of increased efficiency on the part of the superintendents and department heads. The other is the announcement of plans and the beginning of work on the addition to the Jackson plant of the Nashua Manufacturing Company, at Nashua, N. H., by which the production is expected to be increased 25 per cent through efficiency in arrangement of mechanical equipment, as well as through the special construction of the plant. Here are the two primary ways in which the loss of hours may be offset and the coincidence is significant of the importance and timeliness of the subject.

Concerning the former, a meeting of superintendents of New England cotton mills was held at the Boston City Club, under the auspices of the National Association of Cotton Manufacturers, to hear of the methods of the United States Training Service. What this organization is doing to increase efficiency of employees in manufacturing industries through a system of training, which already has been demonstrated to be capable of producing gratifying results, was explained to the superintendents by H. E. Miles of the Training Service. Mr. Miles called attention to the fact that the shortening of hours is not the only reason for increasing efficiency in production, as he said that the nation would still be four million workers short.

Close attention was given by the superintendents to Mr. Miles as he told of instances in which men who had been employed for years in manufacturing establishments found that, in training departments established in accordance with the plans of the Training Service, they were able to increase greatly their productive capacity. As to the attitude of labor, Mr. Miles gave assurance that the unions were in favor of the proposition. He also said that the idea had the indorsement of John Golden, union leader of the textile workers. Details of the training plan were explained by members of the training force who accompanied Mr. Miles. A general discussion followed in which the superintendents evinced their interest by the questions which they asked. Rufus R. Wilson, secretary of the National Association, presided.

Incidentally, the matter of sharing with the worker the fruits of the products of industry was brought into discussion. Mr. Miles made a plea for the establishment of such conditions in this country that the workers might not only get their fair share of the products of industry, but be led to take a pride in their work. John C. Spence, superintendent of the Norton Grinding Company, of Worcester, Mass., who has served with Mr. Miles on the section on industrial training of the War Emergency Board, succeeded by the Training Service, uttered a word of warning when he said that, with increased production as the result of training, the worker must be permitted to get his full share of the benefit. In this connection, the novel experiment of the Durham Hosiery Mills and others will be watched with interest. A "representative government" sort of mill seems to be the idea. Whether the worker will get a fair share in this plan is a subject for conjecture, but the plan is a decidedly interesting experiment.

As to the Nashua mill project, the New Hampshire firm, of which Frederic Amory of Boston is treasurer, recently issued $3,625,000 in 7 per cent cumulative preferred stock. This is to pay for an addition to the Jackson plant, to cost over $750,000, it is stated, which will mark a departure in cotton mill construction and planning in this country. The authorized capital stock, incidentally, has been raised to $10,000,000. The Nashua company was formed in 1823. The increase in capital is $1,450,000.

This probably will be the most interesting cotton mill which has ever been erected. The design, layout and construction is decidedly different from any other cotton mill in the United States and it is needless to say that it will be watched with great interest by the whole cotton indusry. The new mill will manufacture only Indian Head cloth. This fabric and brand have been in existence for nearly a hundred years and the cloth is now probably the most widely known cloth manufactured in this country.

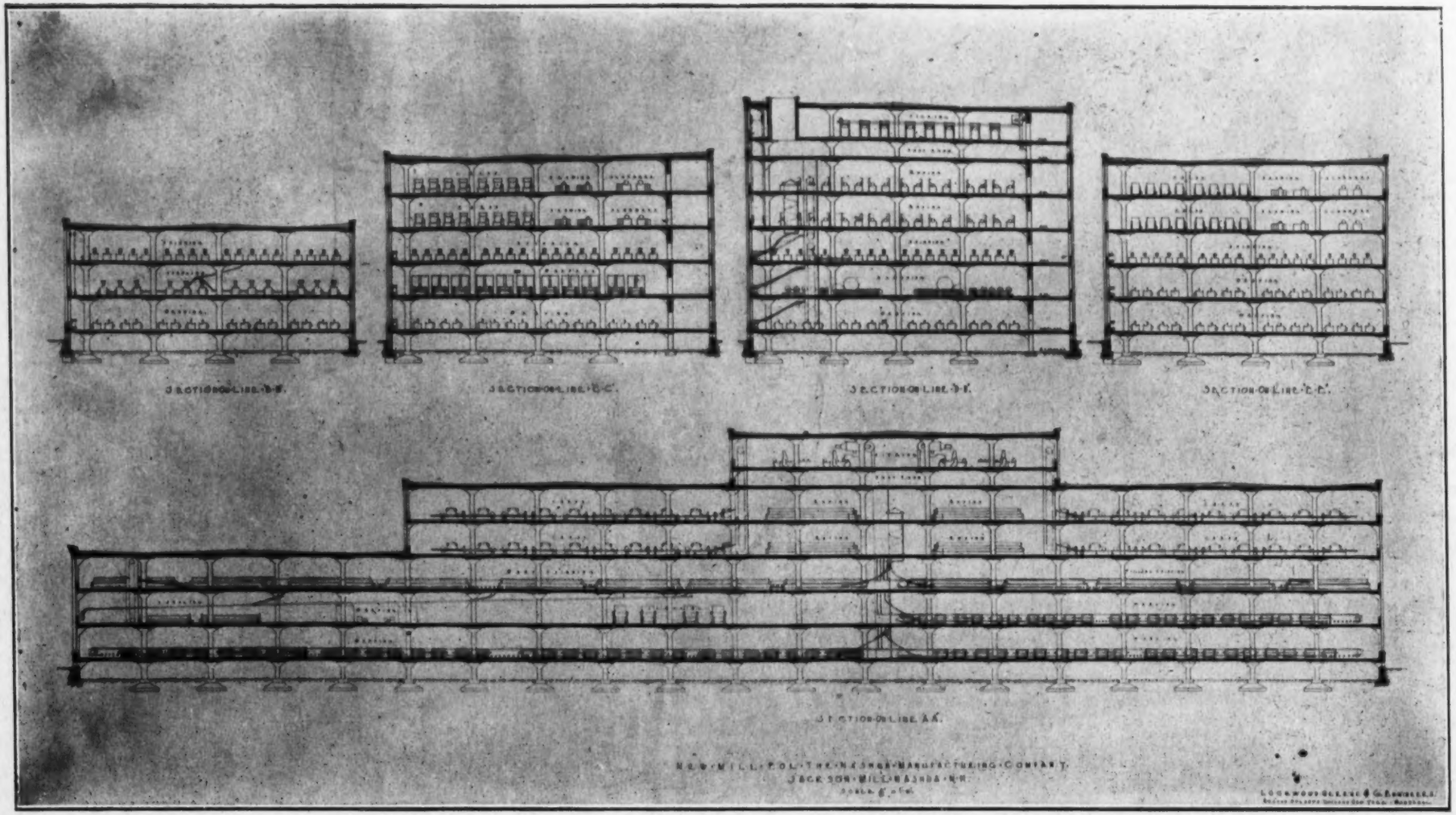
Lockwood, Greene & Co., engineers, of Boston and Atlanta, who conceived these new ideas in cotton mill prac-

The Cost

In these days of high priced materials and labor the question of cost finding is one of the most important. If the costs are not definitely known and properly proportioned, it is an easy matter for apparent profits to vanish, while in their place very real losses frequently appear.

The first of a series of articles on "Practical Cost Accounting" will appear in the September number. They are being prepared by a cotton mill cost man of experience and will go directly to the point. They will not contain theory, but will illustrate practice in such a manner that with slight changes for local conditions, they may be applied directly to the mill.

Watch for September.



SECTIONAL VIEW OF THE JACKSON MILL OF THE NASHUA MANUFACTURING COMPANY, SHOWING THE GENERAL LAY-OUT OF MACHINERY AND THE METHODS USED IN MOVING PARTLY FINISHED PRODUCT FROM DEPARTMENT TO DEPARTMENT.

tice are managing engineers on the whole project, having taken the responsibility for the complete construction and equipment of the plant as well as the design. The Aberthaw Construction Co. are the contractors. The work of demolishing the old buildings is well under way; the new construction started July 1st and it is hoped to have the whole mill in operation early in the spring.

In looking over the sectional plan of this mill, probably the first thing which will strike the reader is the fact that the engineers have started by turning the ordinary cotton mill upside down and have placed the picker room on the roof, with the dust chamber directly under it so as to avoid carrying the dust pipes through the mill. As a result of starting at the top with the first process, the work flows naturally through the mill by gravity and on account of the system of conveyors and gravity chutes which has been worked out there is no need of an elevator except to carry machinery and passengers. The idea of a six-story cotton mill with only one elevator and that not used in the manufacturing process is certainly unique and possibly somewhat startling to old line cotton manufacturers.

It might be interesting to follow the course of the product through this mill and see where unnecessary handling and non-productive labor have been cut down.

The baled cotton is brought to bale breakers on the ground floor of the cotton store house across the mill yard and from the bale breakers it is blown to the picker room on the top floor where Morton distributors place it automatically in the hoppers of the breaker pickers which are in two rows back to back, the delivery ends of the finisher pickers being on opposite sides of the room and very close to two lap conveyors which carry the picker laps to the two card rooms on the fourth and fifth floors. These two rooms are duplicates—the cards being arranged in two groups on each floor and the processes running across the mill instead of lengthwise of the mill as is common practice. It will be seen by a study of this layout that it will never be necessary to carry a lap over about sixty feet. There is a drawing frame within sixty feet of every card and a slubber within twenty feet of the delivery of finished drawing. There is not much chance for trucking in this room. The speeders are centralized on both sides of a broad alley in the center of the room and after going through these machines the product is ready to go to the spinning room which is on the third floor. We have said that the fourth floor was an exact duplicate of the fifth floor.

In the center of the broad alley between the speeders is a double spiral chute leading from the fifth and fourth floors to the third floor or spinning floor. When a speeder tender doffs her frame, she pushes her truck a few feet to the entrance of this chute, shoves the full roving boxes into the chute, replaces them with empty boxes and goes back to her frame. By that time, the roving is in the spinning room alongside of the warp frames if she puts it into one entrance to the chute or alongside of the filling frames if she puts it in the other entrance to the chute. The delivery ends of these conveyors or chutes run along the wall by the spinning frames and supply a constant reservoir of roving. Behind the frames under the conveyor which holds the full roving boxes is another conveyor which takes the empty boxes and returns them to the carding rooms.

At convenient places in the floor of the spinning room are openings which lead to conveyors running respectively to the spoolers for warp yarn and the weave room for filling and under these conveyors are others which return the empty boxes to the spinning room. From the weaving department conveyors carry the rolls of cloth out of the building and over to the cloth room in another building.

From this description it will be seen that there is absolutely no trucking between floors and that the greatest distance anything can be trucked is the width of the building. There are very few places where it will be necessary to truck as far as that.

Another interesting feature of this mill is the fact that it is to be built entirely of reinforced concrete and on the so-called mushroom type of construction. This means that there will be absolutely no beams in the ceilings—nothing but a perfectly flat ceiling supported by columns. This will aid greatly in the lighting of the mill and will make a very easy ceiling to brush down.

It is estimated that with this type of mill, it will be possible to get an increased product of at least 25 per cent with the same working force that is used today. This is due entirely to the arrangement which will make the work so much easier for each employee that with less effort, he can accomplish more.

The entire mill will be heated, cooled and humidified from a central automatic plant so that the atmospheric conditions inside the mill will be nearly perfect and in the hot summer weather the mill will be cool and comfortable at all times. This will make it a particularly healthful and pleasant place for the operatives.

It will be interesting to watch the progress of this and other developments that are to mark an era in the evolution of cotton manufacturing under the reconstruction conditions brought on by the close of the great war.

A New Textile Bank.

Joint announcement was made recently by the Guaranty Trust Company of New York and the Liberty National Bank that incorporation papers of the Textile Banking Company, Incorporated, had been filed in Albany, and that the new corporation would open for business as soon as the charter was granted. The company's headquarters will be in the uptown wholesale dry goods district; for the present temporary offices will be in the Guaranty Trust Company building at 140 Broadway.

The new corporation will have a fully paid-up capital and surplus of $2,500,000. It has the banking support of both the companies named. The incorporators are E. C. Converse, of New York, and Grayson M. P. Murphy and Eugene W. Stetson, both vice-presidents of the Guaranty Trust Company, and Harvey D. Gibson and John P. Maguire, president and assistant cashier, respectively, of the Library National Bank. The officers will be announced later.

The Textile Banking Company will perform the functions of banker for mills in the textile industry, which functions have been performed for many years by firms known as factors or commission houses. In addition the company will finance the fundamental requirements of mills, such as their raw material, and besides will be equipped in many other ways to offer to the mills services which will be very helpful in the operation and expansion of their business

Cotton Manufacturers' Association of North Carolina Meets At Asheville

For several years past it has been the custom of the Cotton Manufacturers' Association of North Carolina to hold their annual meeting at the Battery Park Hotel at Asheville on July 4th and 5th. The present year was no exception to the rule and the meetings this year on Friday and Saturday, July 4th and 5th, were well attended.

The First Session

was called to order by President Arthur J. Draper at 10:30 on the morning of July 4th. He then introduced the Rev. R. F. Campbell, pastor of the First Presbyterian Church of Asheville, who pronounced the invocation.

L. B. Rogers, president of the Asheville Board of Trade, then delivered an address of welcome to the city, which was responded to with a happy reply by J. M. Gamewell, manager of the Erlanger Cotton Mills at Lexington, N. C.

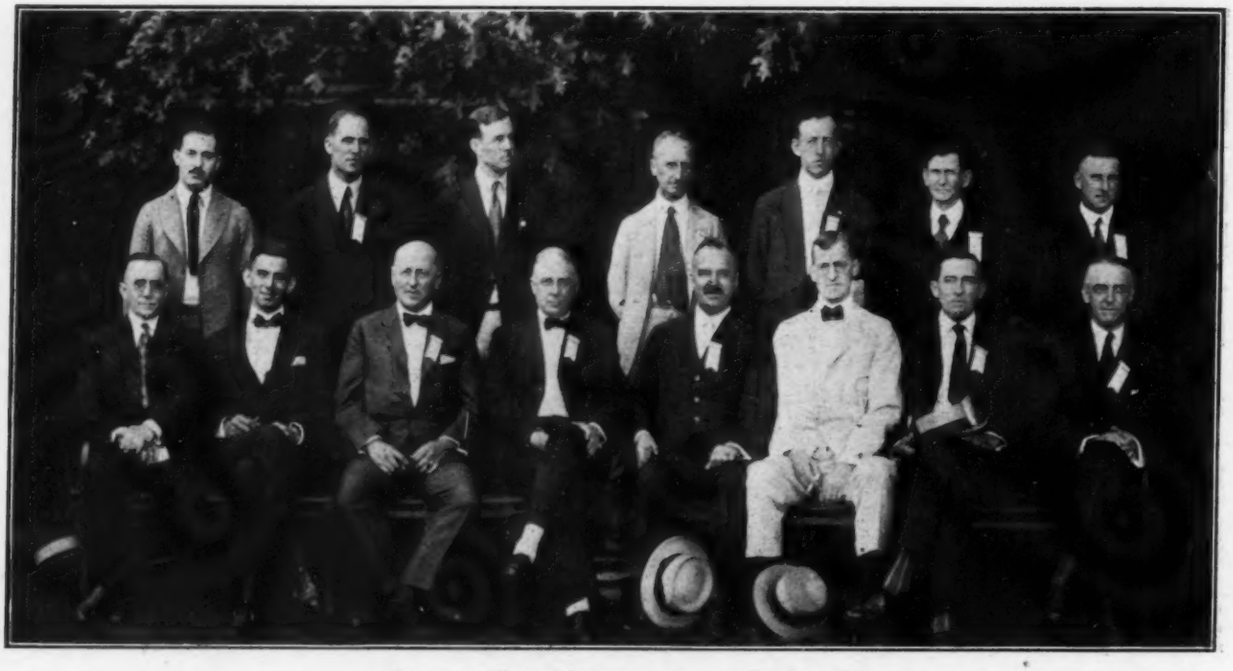
The next feature on the morning program was an address by Dr. C. Alphonso Smith, of the United States Naval Academy at Annapolis, Md., on "American Humor." This excellent address was well received by the members who not only listened intently but applauded the speaker most vigorously.

The last address of the morning session was by Chas. R. Towson, of the International Committee of Young Men's Christian Associations, who spoke on industrial conditions, saying in part:

"In the field of service which I still follow we were confronted with the question, 'How may we make the largest contribution to industry?' This may be answered by saying, 'The largest service to the industrial worker.' There are certain conditions which made it desirable to test the principle and the methods of the work which we contemplated. Those conditions were found in this southern textile field where workers were homogenous, the common stock, and some of the other fields to which my attention was turned, presented uncommon capacity for development. I leave it to you whether I estimated correctly. I am here to talk to you from the standpoint of helping some who have been engaged in the work of helping industrial workers to bring to the surface the best in them. We have no occasion to regret the choice of the southern field and its industry as one of the special points of our administration. We believe you will agree it has been a success."

Mr. Towson continued, saying that he had just completed a tour of more than 15,000 miles, in which his first thought had been of the industrial conditions, and at what points contributions were to be made, and what effect advantages which exist had upon labor. The one outstanding conviction he gathered, he said, was not a new one but an old one. The biggest thing now is not machinery, but the human factor, the protection of the physical and saving of the destructive forces in the bodies of men.

"In speaking of the present mental capacity of the workers in America," he went on, "in El Paso they say let us have the man who will do what he is told to do and not know too much about American industry. We have passed that period of employing the man who does not know and does not advance. He is more dangerous than the man who does know. We are going to have a run for our money. When France comes back, and Germany comes back, and Great Britain raises herself to higher power, we are going to still hold our own because our workers are the biggest factors in industrialism and we have a bountiful supply of raw material. It is not the physical and mental, it is not the body or the mind, but it is the spirit of the man. The



SOME OF THOSE PRESENT AT THE CONVENTION.

body and mind have its value but the spirit has it tenfold.

"It is our business to see that constructive power is raised to its highest degree, in these days in which destructive forces are so active."

Asking the question as to what industry is doing today to select with sufficient care the men who are to put oil on the bearings and keep down the friction between workmen and management, Mr. Towson said three things must be done, namely: Careful selection, full recognition and adequate compensation for the foremen and sub-foremen who stand between the manager and the workmen. If these things are done carefully and honestly, the effort will bring returns in cooperative friendliness.

"One cannot pay wages enough or give hours short enough to insure industrial peace," he continued, "since some want six hours, some talk two hours. The eight hours demand is ancient history. We cannot settle the problem with wages or hours, it must be from the establishment of right relationship, and the payment of good wages." He advised the manufacturers to be cool headed and think out their problems carefully, taking up each issue as it presents itself.

After some committee announcements the morning session adjourned.

The Afternoon Session.

The first speaker at the afternoon session was J. E. Sirrine, the well known mill architect and engineer, of Greenville, S. C., who spoke on the evolution in mill construction and power requirements, saying in part:

"I am very glad to have the pleasure of meeting you gentlemen and of giving a short talk on a situation which seems to have grown to serious proportions. The burden of clothing the world's peoples is falling almost entirely upon the cotton mills, for cotton is the cheapest commodity that can be used, and the demand for cotton far exceeds the supply. For the past few years there has been no increase in production—in fact, a slight decrease, and there is also an apparent dislike on the part of labor to take advantage of the opportunity which is now presented to get ahead and save something. Hours have been shortened, machinery prices have gone to very high levels, and it appears that they are going to stay there; building materials are very high, and there is hardly a mill in the South that could be reproduced for more than twice its cost.

"What are we going to do to meet this demand for cloth and take advantage of the present opportunities? That is a very serious question. You cannot do it rapidly by increasing the number of spindles. You can partly compensate by increasing the number of spindles in operation. All of you are familiar with the little things that you can do in a mill, like keeping adjustments properly made, and it is not my purpose to even discuss those points. Your superintendents and mill managers are much more familiar with things along that line than I, but there are a few ways of increasing production and making running conditions better that are not appreciated or understood by a good many manufacturers.

"Those of you who have had a good deal of experience in manufacturing, know that excessive speed is not desirable. You cannot increase production by speeding up machines, provided they are now running at a good rate of speed, but you can accomplish a good deal by seeing that a high average rate of speed is maintained. For the past few years we have been doing a good deal in the way of research on the question of the individual drive, and we have found by a series of practical tests, that there is a great deal to be gained by maintaining a high average rate of speed. Manufacturing cotton is not a sprint, it is a Marathon—it is the number of picks in the year, not in the minute, that counts. It is impossible with varying conditions of humidity and temperature to keep an even speed, and therefore you have got to get, if you want the best result, some form of absolutely positive drive.

"We have been accused of working for the electric people, but if we are going to be of service to our clients and the industry generally, we have got to take some position.

A PHOTOGRAPH MADE ON THE SECOND DAY OF THE MEETING.

and after investigating this question very thoroughly, we are firmly convinced of the fact that the individual drive, applied positively, has come to stay, and that its importance heretofore has been very poorly realized. Stop and think a moment—you put a belt on a spinning frame on a pulley 12 inches in diameter, a belt 35 feet long, probably vertical. If that stretches 2 inches the contact is gone over the lower pulley. The whole weight pulls it away, almost no contact. If you come with a speed indicator where the belts haven't been cleaned in the last week or so, sometimes there are a hundred revolutions lost from the figured speed.

"After a great many experiments, I found that the best form of drive for spindle and other machines in a cotton mill, was some form of a direct positive drive, whether gears, silent chain or other. We have become convinced that not only a higher production, but a better cloth may be obtained under these conditions due to the fact that the speed is constant, and the cloth loses that wavey appearance. Altogether, we are thoroughly convinced that one of the ways of increasing production is by securing uniform speed either with silent chains, direct connection with motors or by gears.

"We find mills very deficient in proper humidity conditions. It is not enough to have correct humidity at one time—you must have it all the time. If you get uniform cloth, you must maintain uniform conditions in your mill. Without an automatic regulator it is not possible to do this, for there is no overseer on earth who can tell by looking at a thermometer in which the wicks may be stopped up. Besides, they have other things to do, and must go and attend to them, and there is no use depending on them for that. If you keep the humidity constant all the time the condition will not be right. If you get sufficient humidity for all conditions, it necessarily means that you must have too much for some conditions, therefore the automatic regulator must not only be installed, but must be kept up. Several of the gentlemen who are here today have passed through the experience from inadequate to adequate humidity, and they will all tell you there is a tremendous difference in the amount of waste, and that the constant changing in the spinning room has been done away with.

"Another thing I want to speak of, and this applies only to the new mills. You should have a better type of structure. I expect this is an old subject to most of you. The day, however, of putting expensive machinery on poor floors has gone by. Machinery costs too much now to wear it out through unequal settlement. It will last longer and produce better if you give it a hard, unyielding surface on which to work. There is a tremendous investment involved, and the difference in cost for a reinforced concrete building is, on a spindle basis, only $1.50 a spindle, an amount hardly to be considered when figuring a mill on the present basis of around $75.00 a spindle.

"Another thing that is receiving much more attention is better housing conditions for help. A few years ago your competitor on the labor market was the tenant farmer class. Operatives now being skilled labor, wages have reached the place where you are out of that and are more in the line of the skilled mechanic. They receive wages they could not possibly get except as skilled mechanics, and they are able to work the whole family, therefore to attract the best of them you must improve their living conditions, and with the high class of operatives it is possible for us to get here, that is going to be a very profitable investment.

"It is hardly worth while for me to go into a discussion of that. I will just mention one thing which a state health officer of South Carolina told me, and that is that no single case of pellagra or hook worm had ever originated in a mill village which was sewered. As to pellagra that is a coincidence, but as to the hook worm it certainly can be no coincidence. You know what a handicap the hook worm has been to the southern operator. If you can eliminate that alone, even if that were the only thing to be gained, it would stimulate the people to put in longer time, and it would be worth while to get them in the physical condition that they need to be. Of course, that is not the only thing to be considered, but that is a factor.

"I really think that few manufacturers appreciate the tremendous influence they can wield. The world is dependent on textiles and particularly on the cotton industries. There is really a shortage of goods all over the world, and goods must be made. If they are not made there is going to be competition from unreliable sources or a lot of substitution, neither of which is desirable.

"As I said before, it is not possible for you to suddenly increase the output except by the introduction of methods which will make the spindles you have already operate more. I wish very much that I had had the time to prepare a more lengthy address on this subject and give you some facts and figures which our experience has brought out, but in view of the fact that my time is very limited I must close and I can merely say that we will be very glad to give any members of this Association or other manufacturers, any information on the subject they may choose to ask for. We have some interesting data and we will be very glad to have you ask us for it either by mail or in person."

Another speaker at the afternoon session was Hugh McRae, of Wilmington, N. C., who presented to the delegates the outline of the new organization known as the "South Atlantic Maritime Corporation," which is an organization intended to build up the export trade from southern ports, and is to have an authorized capital of $10,000,000. The states of North and South Carolina, Georgia and Florida are interested in this proposition and meetings have already been held in the principal southern cities. A very interesting meeting was held in Atlanta sometime back, editorial comments on which appeared in the June number of COTTON. At the conclusion of the talk by Mr. McRae there was some general discussion, followed by adjournment.

On Friday night at 8:30 p. m. the Association held an informal banquet at the Battery Park Hotel, which was attended by the members, their families and friends of the Association. President Draper acted as toastmaster and introduced President James D. Hammett of the American Cotton Manufacturers' Association as the first speaker of the evening. Mr. Hammett spoke briefly on the question of better industrial education and explained to the mill men present his reasons for appointing a committee on textile and industrial education, not only in the American Cotton Manufacturers' Association, but also in the Cotton Manu-

facturers' Association of South Carolina, of which he is also president. While Mr. Hammett spoke briefly, his remarks were to the point and were received with much satisfaction by his hearers. The next speaker called upon by President Draper was Dr. D. W. Daniel, President of Clemson College. Dr. Daniel took his cue from the remarks of Mr. Hammett on industrial education and while he kept the diners laughing uproariously, at the conclusion of each spasm of laughter he drove home a serious point on the question of industrial education and on the duty and ability of the cotton manufacturers of the South to render immense aid in this connection.

The Saturday Morning Session.

The last session of the convention was called to order

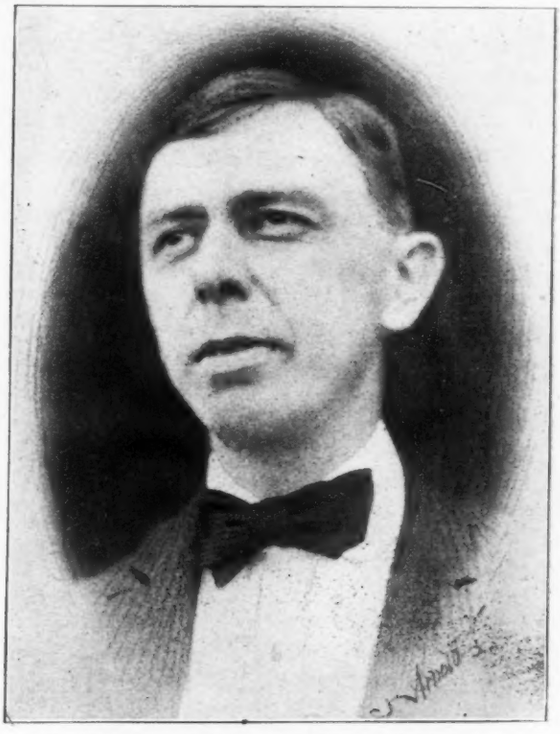
PRESIDENT ARTHUR J. DRAPER.

on Saturday morning at 10 o'clock by President Draper, who read his annual report, saying as follows:

"The past year has been a memorable one in the work of our Association and recently new problems have arisen which will require our best thought and soundest judgment. At the time of our last meeting the terrific struggle abroad was at its height and our boys were showing their splendid fighting qualities which soon turned the tide in favor of the Allies. Price-fixing was then in force but with the signing of the armistice it was decided to allow supply and demand to govern the market. For weeks there ensued a period of dullness which culminated finally in February and March in a decided slump in values, in which yarns and cloth fell considerably below cost and curtailment wisely followed. A few weeks later the tone of the market improved and a scarcity of merchandise has raised prices until there is a reasonable margin of profit.

"We must all realize that times have changed, that we are in a period of so-called inflation and that the shortening of the working day in all industries cannot but increase the cost of living, and the ultimate consumer always pays the bill. What this working day should be is a problem, but it must be remembered that the holder of a position demanding no responsibility can reasonably be expected to do a fair day's work, and will be the better for it. The responsible heads, provided they are worth their salaries, have little or no mental rest, their hours of actual so-called labor varying with business conditions and inside difficulties. I stand on the platform that true happiness comes from hard work and that the present trend toward higher pay for little effort cannot but result ultimately in disaster to industry and the morale of the country.

"I believe in high wages and good living conditions coincident with conscientious work from all concerned and cooperation of the heartiest kind between employer and employee. This condition can be maintained if the mill management is always ready to be fair and if the operatives will turn a deaf ear to radical agitators, do their own thinking and respect wise leadership. I rely on their common sense and integrity to resist the appeal of the demagogue whose promises never fill the pay envelope.



PRESIDENT-ELECT ARTHUR M. DIXON.

"North Carolina has a larger percentage of American citizenship than any state in the Union, imbued with the doctrine of protection to life, liberty and property, and we must not let insidious propaganda from organizations abroad wean us away from the teachings of our forefathers which have stood the test of time and have made America the greatest country in the world."

Next on the program came the report of the secretary and treasurer. This was followed by a report from Geo. W. Forrester, the Traffic Manager of the Association, and the reports of the various standing committees.

The committee on resolutions then reported and a number of resolutions were unanimously adopted, among which

was one in support of the South Atlantic Maritime Corporation in its efforts for the extension of export trade. Another important resolution covered the standing of the Association on international trade and the development of an American Merchant Marine and American Banking and Insurance facilities abroad.

Perhaps the most important resolution brought forth by the committee was one on industrial conditions. This was also unanimously adopted and read as follows:

> Whereas, War activities have unsettled labor and economic conditions in this country; and,
>
> Whereas, The increased cost of living has revised all previous wage schedules; and,
>
> Whereas, The burden created by this condition is in the end borne by the ultimate consumer,
>
> Be it resolved, That it is the sense of this convention that the only way to insure continued prosperity and peace in this country is for employers, employees, and the whole people at large to practice sane co-operation with a generous and friendly spirit in all matters based on prevailing economic conditions;
>
> Resolved further, That a new emphasis should be placed upon the mutuality of interest between employer and employee, and that there should be united resistance on their part against that destructive propaganda that arrays employee against employer and begets suspicion, opposition and conflict.

Then came the report of the Nominating Committee which resulted in the unanimous election of the following officers for the ensuing year: President, Arthur M. Dixon, Gastonia, N. C.; First Vice-President, C. B. Leak, Rockingham, N. C.; Second Vice-President, A. H. Bahnson, Winston-Salem, N. C.; Third Vice-President, James H. Webb, Hillsboro, N. C.; Secretary-Treasurer, Hunter Marshall, Jr., Charlotte, N. C.

After an executive session the convention then adjourned.

Saving by the Transfer System.

"A dollar saved is a dollar earned" is an axiom as old as Ann. It is an axiom that was never more pregnant with meaning than at the present time. Within the memory of many men in the mill business ordinary labor commanded wages ranging from $0.75 to $2.00 a day. Today that same class of labor demands from $3.00 to $4.00 per day. Furthermore, the number of hours in that day is less at the present than in the olden times. Somehow, somewhere, suitable compensation must be found or the production ratio will go backward rather than forward.

One productive place for labor saving around the mills is in the trucking of partly finished and finished products. In the days that are gone it was quite a common custom to see cuts of cloth run over the yarding machines and placed upon a table, where they would be folded and tacked and piled upon a bench. Later a man with a truck would come to that bench and transfer the pieces from the bench to the truck, after which it would be hauled away to the press to be suitably baled and marked. Today a movable platform is placed alongside the folder's table and after the goods are tacked they are piled upon this movable platform until the proper number of pieces for one bale has been accumulated. Then a second platform is placed and the second bale begins to accumulate as the cuts are yarded and tacked. In the meantime the press man runs his transfer truck underneath the first platform, pulls down the handle which raises this platform from the floor, rolls the bale to the press to be properly baled and marked. Therefore, in this simple operation, one complete handling of the ten or more cuts of cloth which comprise this bale is saved. A minute saved is a minute that can be devoted to some other work, and in these days minutes equal dollars.

These thoughts have been brought to mind by a 12-page booklet which has recently been issued by the The Holyoke Truck Company, 114 Race St., Holyoke, Mass., entitled "Inside Transportation; The Holyoke Transfer System." It is known as catalog No. 2. It describes a variety of models of Holyoke trucks which are equipped with the well-known Hyatt roller bearings and self-aligning swivel which takes care of any unevenness in the floor. Ask for information about "The Truck with the Red Handle."

Community Service Information.

COTTON has received from Albert Pick & Company, Chicago, Ill., two catalogs and a booklet, the contents of which are of interest to cotton manufacturing concerns interested in community service work. One catalog is entitled "Equipment for Cafeterias, Lunch Rooms, Restaurants and Dining Rooms." In this a writer puts forth reasons why the cafeteria or lunch room system should be adopted by large manufacturing concerns.

Under the heading, "Industrial Cafeterias," the author points out various instances in which the cafeteria system has been adopted by manufacturers and where the system is proving to be a popular one and a big success. An instance is given in which the working man, who is accustomed to bringing a cold lunch from home, "which is not sufficient nourishment to the body to insure a good afternoon's work," is greatly gratified when his employer installs the cafeteria system, giving him warm, nourishing food, at a reasonable cost.

Attention is called in the article to the fact that the present day workingman resents any "welfare work" done for him by his employer. He dislikes the implication that he needs uplift. The employer also dislikes the word "uplift" applied to his institution. Here, says the writer, is where the industrial cafeteria system plays an important part and unites the employer and employee in a more democratic spirit. It furnishes sufficient food for the worker to tide him over the day in a good spirit and increases his working capacity.

The catalog also gives views of model cafeterias installed by Albert Pick & Company in various factories. The writer says that a leading textile manufacturer of the South has even gone so far as to encourage "eating between meals" on the part of his operatives. His lunch room is open all day long, and whenever the workers in his mill can leave their machines without detriment to the product, they are allowed to go to the lunch room and purchase whatever food they may desire.

Another booklet, which is entitled "Rest Room and Club Room Furnishings," gives views of modern and complete rest rooms for men and women which are also being installed in the plants of many progressive manufacturers. A view of a typical rest room for women is shown.

The booklet, "Employee Betterment," sums up the contents of the two booklets described and sets forth in a practical way the modern idea in rest rooms and cafeterias.

Middle States Textile Manufacturers Meet

Did you ever start out on a convention or business trip on a very hot day or night in July, spend a miserable time on the train or hotel, a sleepless night, hit town hot and fagged, and have the sun come out hotter than ever? That's what happened to a number of members of the Middle States Textile Manufacturers Association, who came to Louisville for the annual convention at the Louisville Country Club on Tuesday, July 15th. However, they got together at the Seelbach Hotel at 10 o'clock in the morning, and were met with automobiles, which took them to the country club. Just before the last machine had discharged its load the district was hit by a sixty-mile gale, which brought lots of rain in a regular cloudburst, and a drop of thirty degrees in temperature. From a hot, roasting day a cool, cloudy day with light rains emerged. It was certainly a wholesome relief. One member stretched his arms, filled his lungs with pure air coming in from the golf links and open Ohio River and exclaimed, "Oh, Boy, ain't it a grand and glorious feeling." Spirits were improved materially, and from that time on enough ginger was displayed to result in active discussions. Although that section of the world controlled by the United States has gone dry there are a few textile men in Louisville who planned for the dry days.

Of course the change in weather conditions killed any prospects for golf. Last year the wide verandas at the country club were dotted with members of the fair sex, whereas there was no indication that the club was anything but a stag organization this year. A few of the faithful golfers were out, but things were quiet as a whole. The club sits on a high hill, overlooking long stretches of the Ohio River, wonderful greens, and a golf course made to order, with yellow wheat fields in the background. An excellent luncheon was served at the country club in the middle of the day, along with something that contained a kick. A dinner was served at the Pendennis Club at 7 o'clock in the evening.

At the morning session about twenty-five textile men were gathered in the director's room at the club, attendance being unusually good due to the fact that legislative, marketing, labor and raw material conditions are of general interest to the manufacturers at this time, and there is a strong need of getting together and discussing such matters. Kentucky, Tennessee, and Indiana were represented, with the majority of the members present coming from Kentucky and Indiana.

Officers elected were as follows: Paul J. Marrs, secretary-treasurer of the Henderson Cotton Mills Co., Henderson, Ky., president; Philip S. Tuley, president of the Louisville Cotton Mills, Louisville, re-elected vice-president; Lee Rodman, vice-president and manager of the Indiana Cotton Mills, Cannellton, Ind.; re-elected secretary-treasurer. E. P. Toof, of the Cohankus Mfg. Co., Paducah, Ky., was detained in that city, resulting in Phil Tuley presiding over the meeting. Directors elected other than the officers were: C. A. Young, of the Indianapolis Bleaching Co., Indianapolis; R. A. Cochram, Maysville Cotton Mills, Maysville, Ky.; F. G. Eberhard, Jr., Mishawaka, Ind., and C. N. Brown, Evansville.

The organization went on record as being in favor of the use of better cotton seed, claiming that there was an absolute necessity for improvement in quality of seed used for planting purposes, and it was decided that such members as could attend the Cotton Conference in New Orleans in October would make a fight in that direction.

Due to shortage of labor, costs of production has mounted in some plants, as the larger the production the smaller the relative cost per pound for production. It was held that production should be maintained and every effort used to hold up volume. In this way it will be possible to prevent further increases in manufacturing costs.

It was held that due to long rains in the South, shortage of agricultural labor and poor growing conditions, prospects are for a short crop of only fair quality cotton, resulting in higher costs for raw materials, and higher general markets on cotton goods. Members present were of the opinion that higher markets were inevitable, and were also of the opinion that there will be a big demand for cotton, with a heavy domestic and export demand for manufactured cotton goods.

Philip S. Tuley, President of the Louisville Cotton Mills and Vice-President of the Association, Who Presided at the Meeting.

In discussing the labor situation members were generally found anxious to hold the present scales of wages, it being pointed out that labor was not being paid more than it deserved under the high cost of living conditions, and that wages would have to be held on the basis of living costs, with even further increases in wages in event of higher living costs. Manufacturers showed a stronger spirit of cooperation with labor than has ever before been evidenced in the textile industry, and a willingness to help employees wherever possible, and pass the costs on to the ultimate consumer.

Textile employers are found willing and ready to do the fair thing by employees, but are absolutely opposed to unionism, or any effort of the employees to control the manufacturers. Considerable discussion was heard relative to conditions existing in one city of Western Kentucky, where a large mill has been down for several weeks as a result of a strike, which started with the spinners, resulting in the mill being crippled and closing down. Employees in this plant asked for a fifteen per cent increase in wages, and a reduction in hours, along with recognition of the union. The company considered the increase, but could not and would not consider recognition of the union. This matter was discussed with interest, best methods of handling such matters being discussed pro and con, with various members taking the floor.

Members expressed themselves as very unfavorable to the newspapers' methods of playing up strike news, it being held that pressure should be brought to bear to prevent the Associated Press from scattering strike news all over the country. Such news tends to dissatisfy workers thousands of miles away from the seat of the trouble. Conditions in various sections are so entirely different that they have no real bearing, but press dispatches generally garble the matter, and do no one any earthly good. Such reports merely stir up trouble, and it would be much better if they were not carried. Newspaper men claim that if such news was not carried there would be a spread of labor papers, but that is doubtful. It is held that the manufacturers and business interests generally could secure all the information they desired on such subjects from their trade papers, which could carry the matter, and which do carry it. Where such information is contained in trade papers it only reaches the employers, and not the employees.

Mr. Tuley made a very interesting talk relative to labor conditions, stating that it was up to general manufacturers to change their policy, and take the public into their confidence, instead of maintaining the old "public be damned" policy: Mr. Tuley said: "Working conditions in mills are much better than the public generally believes. Many of us have made every improvement that we can learn of, and have our plants as close to physical perfection as is possible. The public knows very little concerning what we have done for our employees. Textile manufacturers have gone to great expense in safeguarding machinery, installing rest rooms, showers, lockers, cafeterias and dining rooms; have presented employees with group insurance; are carrying workmen's compensation insurance; they look after their employees who are sick, give vacations, in some cases bonuses, etc. Many plants have reduced working hours to fifty-four hours a week, and have tried hard to get on a better platform with their helpers. We have tried to be human, and have tried our best to help our employees. We are anxious to make things as easy as possible for all of our workers, we realize that they earn what they get, but the employees don't fully realize it, and the public has a general opinion that conditions in mills are bad. The only way that we can improve the general impression is to tell the public, take it into our confidence as we have endeavored to take our employees. This can be accomplished best through closer relations with the press."

Considerable discussion was heard relative to the unfairness of the railroads in increasing freight rates, which has not been on any set percentages as set forth in the general rate increases, and resulting in rates on cotton, coal and other commodities being out of line in many instances, and also resulting in increased expenses of several thousand dollars annually in some cases.

The policy of the Railroad Administration in laying off railroad shop employees was condemned, it being held that in the meantime cars were getting in bad repair, and that the facilities of the railroads would be taxed in handling the 1919 crops and an eleventh hour coal demand with crippled cars. More than 2,000 shopmen on the Louisville & Nashville system are on a layoff, and a car shortage is already developing which will become acute when crops and coal really start moving. The coal people have started a fight for better cars, and it is held that the railroad administration has curtailed expenses at the wrong point.

Discussion was also heard relative to delay in Washington in remitting overpayments on income taxes, which were paid on approximate guesses at the outset. One manufacturer reported that he had a rebate of over $6,000 coming to him, but had been unable to even secure an answer to letters sent to the Internal Revenue department. Others reported that the Government had been very slow in making payment on merchandise purchased before the war closed, several claims for merchandise delivered not having been liquidated even yet.

Members were generally of the opinion that the country is facing an excellent volume of textile business, with wool prices so high that cotton will be in even better demand. A good domestic as well as export trade is confidently expected by all members.

As regards labor conditions the members seemed to believe that there will be no general troubles, although the situation is one that will have to be handled carefully, with measures adopted as conditions warrant.

Income Tax Tips.

(*All replies to questions in this column given free of tax.*)

PUZZLED.—Don't be bluffed. Simply put all extra leaves in dining-room table, grasp tax return firmly with both hands, and throw it flat on its back. When you have it down brand it on first page with hot ink.

C. H.—Yes, algebra may be used in figuring your return. Personally we employ trigonometry, although many prefer calculus and a couple of lawyers.

TAXPAYER.—Your problem is as clear as a Chinese laundry-ticket. Simply deduct the net profit of losses (plus inventories at end of year) and add income from salaries, wages, bonuses, director's fees, and pensions. Nothing to it!

J. J. C.—Refer to Table 113 on Page 11, Section 28, Part IV of return. Then if Item 86, Schedule V, line 7, exceeds the sum stated in Item 21, Page 9, Schedule Z, get another blank form.

CONFUSED.—No, you should have figured the amounts in Items 34, 60, and 69 as net losses from Wear and Tear. Obsolescence and Depletion Charged Off (see K (2) on Page 8 of Instructions) before entering total in Item 94, Schedule O. It's perfectly simple.

L. F.—Don't worry about your 1919 tax. You may not have any income.—*Brooklyn Eagle.*

Notes on Tire Fabric Manufacture

BY "JOHNSON."

[The following information was furnished in response to a series of questions on tire fabric manufacture propounded to the Editorial Department by a correspondent. As it may prove of general interest it is reproduced herewith.—Editor.]

In the following article the writer has endeavored to make the subject as plain as possible and the figures given as to production may be altered to suit the prevailing local conditions. All figures given are approximately correct and have been verified and have been used by the writer during his seven years' experience with the best and largest mills making tire fabrics a specialty.

Every mill man has his own ideas as to production, speeds, etc., and what can be used in one locality cannot be considered in another, but the writer has found the information given to be productive of the best results and that is what counts in the tire fabric game.

Every price given has been secured within the past three months and is practically correct, while they were secured from one machinery concern, the writer compared the prices asked with those of three other cotton machinery manufacturers and after a comparison finds that the three price lists vary only slightly either way, so the prices given may be taken as approximately correct.

Each and every machine has the latest improvements such as safe drives, clutch spindles, self-oiling steps, knee brakes, Ermen clearers, hank clocks, metallic thread boards, etc., no improvement has been eliminated and the machines are strictly up to date.

We will consider the building of a plant to produce 25,000 lbs. weekly of tire fabric 23 x 23, 60 inches wide, 17.25 oz. goods and the estimated organization would be as follows:

ESTIMATED ORGANIZATION.

Beginning with 23s tire yarn and doubling we get 23 × 2 = 46 ÷ 10.00 spinning draft = 4.60 hank roving from 8″ by 3½″ roving frame.

Doubling we get 4.60 × 2 = 9.20 ÷ 6.13 frame draft on 8″ by 3½″ frame = 1.50 hank roving from 10″ by 5″ roving frame.

Again doubling 2 we get 1.50 × 2 = 3.00 ÷ 5.45 frame draft on 10″ by 5″ frame = .55 hank roving from a 12″ by 6″ slubber. This is equal to 15.15 grain slubber roving and with a slubber draft of 3.96 we have 15.15 × 3.96 = 60.00 grain sliver from finisher drawing.

With a draft of 6 on the finisher drawing we have 60.00 × 6.00 = 360.00, but as we are also doubling 6, this figure is brought back to its original point. 360. ÷ 6.00 = 60.00 grain sliver from the breaker drawing.

With a draft of 5.50 on the breaker drawing we have 60.00 × 5.50 = 330.00 ÷ a doubling of 6, which would be 330.00 ÷ 6 = 55.00 grain comber sliver.

Figuring a comber draft of 62.00 we get 55.00 × 62.00 = 3410.00. Allowing for 13% comber waste we get 3410.00 ÷ .87 = 3920.00, and dividing this number by a doubling of 8, we have a 490.00 grain sliver from the ribbon lap machine.

Multiplying this number by the draft on the ribbon lapper we have 490.00 × 4.00 = 1960.00, and dividing back by the doubling of 4, we get 1960 ÷ 4 = 490.00 grain sliver from the sliver lap machine.

Allowing a draft of 2 and a doubling of 20 on the sliver lap machine will give 490 × 2 = 980 ÷ 20 = 49.00 grain card sliver. Allowing for 5% waste on the card, 49.00 ÷ .95 = 51.00 × 113.00 card draft = 5763 grains or 13¼ ounce picker lap.

ESTIMATED BASIS OF RECLAMATION.

Having decided upon the organization let us now consider the manufacturing results to be expected. Assuming the cotton opened in 60 hours to be 33,327 pounds, with a 3% loss for picker motes this would give us 33,327 × .03 = 999 pounds of picker motes or 33,327 — 999 = 32.328 pounds of picker laps produced in 60 hours.

Again assuming a 5% loss in card strips and fly we have 32,328 × .05 = 1616 pounds of card strips and fly, leaving a net amount of card sliver of 32,328 — 1616 = 30,712 pounds.

Allowing 13% for comber noil, we get 30,712 × .13 = 3992 pounds of comber noil, leaving 30,712 — 3992 = 26,720 pounds of combed sliver.

Making an allowance of 3% for clearer waste, etc., will give us 26,720 × .03 = 801 pounds of this material, which will leave us 26,720 — 801 = 25,919 pounds of 23s yarn spun in 60 hours.

Figuring a weave room waste of 3% on the foregoing amount, we have 25,919 × .03 = 777 pounds of weave room waste leaving 25,919 — 777 = 25,142 pounds of tire duck woven in 60 hours.

APPROXIMATE MACHINERY COST.

With the organization outlined the necessary machinery and its cost would be about as follows:

1 2 section Roving Waste Opener	$ 1,600.00
1 Card and Picker Waste Cleaner	1,600.00
1 Bale Breaker	1,200.00
2 Breaker Lappers (2-Beaters.)	6,300.00
4 Finisher Lappers (1-Beater.)	6,100.00
64 Cards	77,920.00
5 Sliver Lap Machines	4,250.00
5 Ribbon Lap Machines	7,000.00
34 Combers	73,780.00
70 Drawing deliveries	10,850.00
3 Slubbers (240 Spindles 12″ x 6″)	6,225.60
8 Intermediates (832 Spindles 10″ x 5″)	16,273.92
17—Fine Frames (3,128 spindles 8″x3½″)	40,194.80
68 Spinning Frames (14,960 Spindles)	109,928.66
19 Spoolers (6″ gauge)	15,048.00
9 Warpers (360 ends)	3,375.00
8 Twisters (120 Spindles each. 960 spds.)	22,167.86
1 Filling Winder (15 Spindles)	937.50
32 Looms	43,680.00
1 Compressor Warper	3,750.00
1 warp-tying Machine	2,700.00
	$454,881.34

[Note. Inasmuch as several machinery firms have made recent advances in their prices, the prices given may be considered only as reasonably approximate.—Editor.]

ESTIMATED HORSEPOWER.

1 Bale Breaker	5	horsepower.
1 Roving Waste Opener	2	"
1 Card and Picker Waste Cleaner	3	"
2 Breaker Lappers	30	"
4 Finisher Lappers	30	"
64 Cards	70	"
5 Sliver Lap Machines	3	"
5 Ribbon Lap Machines	3	"
34 Combers	34	"
70 Drawing Deliveries	15	"
3 Slubbers	6	"
8 Intermediates	16	"
17 Fine Frames	34	"
68 Spinning Frames	340	"
19 Spoolers	9	"
9 Warpers	5	"
8 Twisters	20	"
1 Winder	1	"
32 Looms	45	"
1 Compressor Warper	5	"
Total	678	"

The horse power given is the approximate power needed at the machines and no effort has been made to compensate for friction or transmission losses.

BREAKING STRENGTH.

The breaking strength of tire fabric yarns is, as in other yarns, wholly dependent on the staple quality of cotton used and the twist inserted.

The twist usually used in the various kinds of tire fabric yarn are as follows:

	Twist per inch.	
	23/1	23/2
Combed Sea Island	16.5	3.84
Combed Egyptian	17.85	3.84
Combed Peeler	18.5	3.84
Carded Peeler	20.5	3.84
Carded Egyptian	18.5	3.84

TIRE YARN BREAKING STRENGTH.

	23/1	23/2
Carded Egyptian	100 lbs.	11½ lbs.
Combed Sea Island	145 "	14½ "
Carded Peruvian	100 "	11½ "
Combed Peeler	100 "	12 "

In regard to the breaking strength of the 23/1 yarn would say that the standard break for Combed Sea Island is about 140 pounds but by using a 1¾ inch staple a breaking strength of 160 may be obtained and of course the higher the break the better breaking strength in the fabric is secured and a better price.

In talking to a friend in the business he states that he is securing a maximum production of 2.12 pounds per spindle and is securing a break of 15 points above standard but to secure this he has a special mixing of his cotton.

Arizona cotton has very nearly the same breaking strength as Sea Island and is being largely used.

GOOD FABRIC BREAKING STRENGTH.

	Breaking Strength
Combed Sea Island	400 to 415 lbs.
Combed Egyptian	375 to 380 "
Carded Peruvian	340 to 345 "
Carded Sea Island	340 to 345 "
Combed Peeler	300 to 325 "

This is on a testing machine with 1-inch to 2-inch jaws and allowing 3 inches between jaws.

A good carding production on the various grades of cotton is as follows: Combed Sea Island 300 pounds; Egyptian 450 pounds; Peeler 575 pounds. The two latter can be increased but it is not advisable to try it on Sea Island.

Replying to the other questions submitted will give the following replies as my experience:

The twist per inch varies with the cotton used but would average 18 turns per inch single and 3.85 on ply yarns.

All the yarn is warp wind and all the pieces that are left after warping are sent to the quillers and made into filling.

The draft in the spinning room is usually 10 to 10.50 and an average production is 2 pounds per spindle.

Self-weighted spinning rolls are always used on tire fabric yarns when long staple cotton is being used, but on short stock they are absolutely useless.

A 4 x6 warper spool is the best size the writer has found.

In regard to the preparation of warps would say that to secure a good piece of tire fabric the harder the warp is made the better the fabric and the only warper or beamer to be used is the warp compressing machine. This beamer gives a good hard beam and the result is a perfect piece of fabric.

Usually tire fabric is woven in rolls of 500 yards averaging 750 to 800 pounds, but some tire concerns take 125 yard rolls. Most of the business now is based upon 500 yards.

A 76 inch loom on tire fabric should not be run over 120 picks per minute while a 92 or 108 inch loom should not run over 100 picks to secure the best results.

The writer was connected with one plant where it was decided to speed up the 92 inch looms to 120 picks per minute but their private hospital was very busy during that time—due to breakage on the looms.

A New Catalog.

The Belmont Iron Works, manufacturers of structural steel and ornamental iron, with general offices at 22nd street and Washington Avenue, Philadelphia, have issued a new export catalog in English, French and Spanish. They purposely printed this on light paper, without cover, in order to send it abroad folded, as first-class mail. This catalog contains, in addition to photographs showing steel structures which they have designed, fabricated and erected in all parts of the country and abroad, valuable tables (with explanation in three languages) in English and Metric units, covering all classes of structural materials as well as valuable information in three languages, pertaining to information necessary to enable American Companies to intelligently quote on foreign inquiries, and which they feel should prove of great value to engineers, exporters, and owners. It is their intention later to re-print this catalog for domestic use, with additional photographs and data on calendered paper, with attractive cover, to be mailed as printed matter.

At a convention of the Western Efficiency Society in Chicago it was stated that 55 per cent of the factories replying to a questionnaire to determine the success of employee representation in factory management, reported that the plan had stimulated production.

Carding and Spinning Colored Stock.

BY WILLIAM B. NANSON.

The carding and spinning of colored stock is fast forcing its way into nearly if not quite all mills where colored goods are made, and as it is on the increase, is it not well for our manufacturers to stop and think long and well on the subject, and ask themselves: Does it pay to color the cotton before it is spun, under all conditions, or card and spin and then color the yarn?

I am not, in this article, going to favor either system, but to show the readers something of the methods and means employed for spinning filling or hosiery yarns from dyed stock. Yarns for warps are better if spun first and then dyed on the warp dyeing machine by the long chain system, and filling can also be dyed by this system and then quilled onto bobbins by the use of a long chain quiller.

There is little doubt in the mind of the writer that the proper place to spin colored filling or hosiery yarn is on the mule, it makes for smoother, better running yarn, inasmuch as the winding or tension is not applied until after the twist is in, then again the stretching helps it a lot.

Now since knitting men like to have as large a cop as possible it may be of interest to know how to produce such a one on mules that are made to spin filling only. It is very patent that we cannot run every spindle on a mule and make a cop as large again, or nearly so. If we attempt to make such a cop, with the mule as it is, we shall spoil the work, because the larger circumference of the cop takes up just so much more yarn at each revolution of the spindle. Something more is evidently called for than simply putting on a larger sized ratchet gear.

If we run the chain up to the highest point in the quadrant arm, it will help to some extent, but only during the building of a portion of the cop bottom. As soon as the cop has outgrown its usual dimensions, the friction commences to get tight, and if we continue to run the mule so, we shall soon pull down all the ends.

Then it might occur to us that if we set the quadrant back as far as we could get it, and put on a larger pinion to work it, we would get more chain. In this case it might help us a little but would still be insufficient for our needs as the cop increased in diameter.

By combining the two methods we could undoubtedly make a larger cop, but the tension would be severe, especially on the nose, and with the slack twist we could spoil much of the yarn. If the quadrant were only five or six inches longer we would be all right, as this would give more chain. I refer to the length of the run. The builders have not so made it, however, as it is easier to alter some other part if required.

There is one way we can get all the chain we want. It is understood in mule spinning that the spindles must revolve a certain number of times to take up and wind on the yarn as the carriage runs in. The number of these revolutions depends upon the size of the surface it is wound upon. In the event of a cop being of an increased diameter, the spindle, with its attached yarn, will require fewer turns in order to take up the same length of yarn, as it is the length of chain given off from the winding drum that determines the revolution of the spindles, and the spindles revolve a certain number of times for every turn of the winding drum upon its axis. Now if we could retard the number of revolutions of this drum and at the same time get sufficient length of chain to help up the revolution of the spindles, it is evident we shall have accomplished the object sought. If we could increase the diameter of the winding drum we would reduce the number of its revolutions, and also the revolutions of the spindles in like proportion. This would fulfill all requirements and would be just what we want, and this is just what we propose to do. We get two castings fitted so as to envelop the drum winding surface, and have the attachments secure. This is all. They can be applied very quickly and as easily removed as occasion requires and it will enable us to make as large a cop as we may desire. In applying this device, do not run the nut up so high on the thread within the quadrant arm, as on the smaller sized cops after doffing.

Yarns spun from dyed cotton vary considerably in color and appearance according to their twist and drafting and therefore it is essential to set down in a book what gears and other conditions were used for a certain number and style of yarn and ever after to strictly conform to all these particulars,—this to insure a uniform product at all times. At times several months may elapse between similar orders and it is always the wisest plan to be sure of our ground. Furthermore, it takes considerable time to figure out for all changes where there is much to be done and in the hurry and confusion of the work, slight mistakes are liable to occur, therefore, a record book will save much time as well as bad and ununiform work.

The self acting mule is without doubt the best machine for spinning colored cotton stock where the yarn is to be of a coarse number (3s to 10s) and is to be used for filling, for it must be remembered that colored cotton stock should be handled and drawn as little as possible, as much doubling and drawing make the yarn tender and "shiney" and takes all the bloom off the color, making it look bare and poverty stricken.

A piece of cottonade, for instance, filled with a No. 4 condenser yarn (black and white mock twist) spun on the woolen type of mule, either with or without a cotton headstock, is a very much superior looking fabric to one filled with ordinary ring-spun yarn, and the condenser yarn is also cheaper as there is less waste made in making it and fewer operations.

In the condenser system of spinning, the web of colored cotton is divided up as it comes from the card into a number of individual strands, say 20 or 30 or more, and these strands are wound (as they leave the card) side by side upon a long flanged bobbin of the width of the card, which bobbin, when full, is placed directly into the creel of the mules and spun into yarn without any intermediate treatment.

There are three methods of drafting which may be used on the mules on this style of work: (1) drafting out on the "ratching," or, "second stretch" principle with the rollers entirely stopped; (2) drafting on the "gain" or "drag" principle with the carriage going faster than the delivery of cotton from the rollers; and (3) drafting by rollers in the usual manner common to spinning. For reasons already given I do not approve of the last system if it can be possibly avoided. In the latter system, however, the

yarn may be spun into slubber roving made by the preparatory system instead of from the long condenser bobbins and this might be a convenience in some cases. I have not room in this paper to enter into all the details.

Ring Frames for Colored Cotton.

A ring frame of say 300 spindles 2¾ inches gauge, 6 inches lift, should produce about 1200 pounds of No. 8s yarn or 700 pounds of No. 12s in one week of 54 hours.

In the ring frame the bobbins are driven by the spindle, and the traveler by the thread, the traveler also varying in speed in proportion to the different diameters of the bobbin, so as to regulate the velocity of its acting circumference to the uniform delivery of the rollers. But the thread spun has sufficient strength of itself to bear the drag of the traveler, and therefore no mechanism is required to regulate its motion. The velocity of the traveler is retarded by friction, which can be regulated to any degree that may be required by means of heavier or lighter travelers; and being thus retarded, the thread, by the motion of the bobbin, drags the traveler after it with a velocity equal to the difference between the motion of the bobbin and the surface motion of the front roller, or the length of thread delivered from the front roller. From the foregoing it will be seen that the traveler is the actual twist given, and that as the traveler also varies in speed in proportion to the different diameters of the bobbin, some amount of irregularity in twist is the result.

Travelers in use on colored work do not last so long as on white, so that we must be on the lookout, instructing spinners to keep only good ones running. A spinner educated to the means of detecting bad travelers while running will have no difficulty with her work on that score, as they are very easily singled out from the sound ones. There is more tension on colored yarn with the same size travelers, and it is well to keep this constantly in mind in changing frames from white to colored stock as often happens. It is the presence of the dye which gives the thread more resistance in passing through the traveler.

A periodical examination of the travelers should be made by some one who can locate bad ones if the spinner is not capable of doing so. Bad travelers should be removed and their places supplied with new ones. There is absolutely no economy whatever in running a worn traveler. Such a method will be found to work very well, as this measure will keep the rings abundantly supplied with perfect travelers. Renewing the entire lot of travelers on a frame every month, or at regular frequent intervals, is practiced in some mills; this is also an excellent plan; but as some travelers wear longer than others, the plan suggested above will be found to give good satisfaction; and where the spinner can be relied upon to give close attention to this matter, and by showing her it is to her own interest to do so, it will in most cases be sufficient; it leaves nothing to be desired.

The objection to the wholesale removal of travelers is on the score of economy; and further, if spinners know renewal is made at stated intervals they are apt to let the bad ones remain on until the regular time to take them off; besides, there is the loss of time in stopping the frames for their removal. Never oil a traveler or ring. If it fails to run good, look for some unbalanced part; perhaps the ring is loose or is not set level. The traveler may not fit the ring properly, both the traveler and the ring may be worn or there may be deflections from its normal course which will increase the tension and continually break down the thread, as in case the spindle is not in the center of the ring, or the guide wire properly adjusted. All these and many more little things may cause the end to keep breaking, giving one the impression the traveler is at fault.

On account of the character of colored work, we are not so apt to observe defects in the yarn, even when we are watching it run. For some reason our ideas are not so clear in regard to certain matters which are occurring. If the yarn were white we could understand the remedy at once, but on colored yarn we seem to be groping in the dark as it were, especially if the color is very dark. Our conception is slow, and our efforts in the direction of remedies somewhat tardy. For instance, in the setting of the rolls, we cannot perceive as easily just how the work is running, particularly if the light is rather deficient, which is frequently the case in colored mills, as the machinery is not set so as to afford the most light. With the darkness and the nature of the work combined we do not receive as correct an impression as if we were in a well lighted room and on white work.

A given position of the rolls will not suit best for long at a time, especially if much changing is a necessary part of the work, or where great modifications in the character of the cotton are noted. Still a spinner cannot reset his rollers every time he makes a change in his yarn, or where a new feature of the roving is observed. Defects such as these are a necessary consequence of this kind of work. If these changes occurred at rare intervals, some attention could be given to the matter with considerable advantage to the work. But where frequent change is the rule, such alterations are not expected. It would be advisable to keep certain frames for certain yarns, as in this way we could minimize the evil; at the same time, in relation to the rollers, we must remember that the colored yarn requires a wider separation of the rollers than would be required for white work, for when the fibres of dyed stock are pressed together they pull apart less easily than white.

In a great many mills there is more or less trouble with the drawing of the roving, owing to some difficulties or lack of attention in the dyehouse. Too much dye used, cotton insufficiently dried, too much oil or soap on the fibres, such are a few of the many things to provide a spinner with object lessons in discomfort. It requires but very little dampness in the cotton to augment the resistance in drawing so that much bad work will follow. In some mills the work is run much coarser than the machines were built to handle. The weights used in the drawing of the roving being much too light, imperfect and irregular work is the result. In such cases we may have to set the rollers somewhat wider to assist us over the difficulty. Increasing the size of the front roll by adding one or more layers of flannel would be of considerable service to us by giving a firmer grip to the cotton through a larger contact surface, thus answering in the place of more weight.

Then there are occasions when the cotton will come to the spinner more or less burnt or tendered. It is at such times that he will have his highest abilities called upon. There is no life or vitality remaining in the fibre, and the ends will not stay up. The yarn is extremely tender or rotten and has no strength. It will be found that such roving has been doctored up by the carder in order to

get it along, all of which has not improved its condition for spinning. More twist has been put in, which has the effect of still further diminishing the strength of the fibres. The roving may be soft wound or the reverse. If too soft, it breaks out frequently; if wound too tight it has injured the fibres by so doing. The roving will be found very irregular and uneven, as such cotton is difficult to card, and will cause trouble all the way through the card room, so that by the time it reaches the spinner it is in a most satisfactory state for making waste, and is not fit for much else. However, since it has come so far, we shall make it as good as possible, and pass it up to the weaver. It will be advisable to make the work a little heavier, in order to allow for any subsequent loss; at the same time putting in a little more twist. Owing to the irregular state of the roving, some places being much heavier than others, it will be too much. In places much thinner than the standard, the twist will be insufficient and the end will break down. This cannot be avoided. It will be well to put on a lighter traveler; this will put less strain on the yarn and save many ends. If possible to reduce the speed at such a time we may find it will be true economy. It will reduce the strain on the yarn to a great extent, and that is the object most sought after. The yarn must be handled with great carefulness, otherwise much of it will go back into waste. At the best it will not be very desirable stuff. It is in roving, and the spinner must use his best endeavors to make something out of it that looks like yarn, however far short he may be of the object. If this yarn is for filling, the woolen type of mule will spin it far better than the ring frame.

It makes no difference in the handling in the spinning room whether the cotton was injured by over-drying, or by chemicals undissolved or in excessive amount. There is no form of bad work so difficult to handle as this and it will require considerable tact and skill to conduct it through the operation. The rollers must not be allowed to have the faintest suspicion of dryness, while they must be kept scrupulously clean. If there is an unequal surface speed between the top and the bottom fluted roller, the parallelism of the fibres will be disarranged and a great many of them will fail to be twisted into the thread, and it is certain we need all the strength the assistance of these fibres can give us.

The working surface of the rollers should not be permitted to retain the collection of any waste and should be kept clean, as this disturbs even and regular drawing and is one of the many causes of "cockley" yarn. The rolls should be examined carefully and all poor ones replaced with sound new ones. This is very important as many ends break down through an uneven roller surface. Where this does happen it will be noticed that the end drops down quite frequently. There is no apparent cause that will account for it. The spinner may piece up the end, but soon it will break again. We change the traveler, perhaps, but still the same result. Then we oil the roller, but all is of no avail.

If now we examine carefully the untwisted strand of fibres as they emerge from the front rolls we will observe something peculiar in its appearance; at frequent intervals we will perceive a spot that looks thinner and smaller than the rest. It is this thin place that is too weak to hold up the thread and is the reason it breaks. Now what is the cause of this thin section of strand? Perhaps the roving is uneven. It may be so, but observation will show the thin place occurs at short regular intervals, in number sometimes more and sometimes less on different rollers, and generally every three or four inches, depending largely upon the diameter of the top roll. If we look closely at the roller while running we may see an unsteady motion to the revolution; if not, placing the finger on it may detect a slight rise and fall to the finger as the roller revolves. There is the sensation of a ridge passing under the finger repeatedly. Sometimes this ridge is difficult to detect, and may exist only at one point on the roller, or, it may extend in greater or less prominence along the entire cot. More frequently, however, some part is higher than the rest, which accounts for an end sometimes running longer than others before breaking.

This, then, is the cause of the thin place, and it occurs just after the ridge has passed over the fluted roller. The high point in the leather roller prevents that part just behind it from coming in contact with the fluted roller as it should. This prevents the fibres from being drawn as they should and reduces the number of them at that particular point, which weakens the strand and the end drops down.

There are other causes, however, that will produce the same result. If the steel roller should happen to be bent it would streteh the roving and cause the end to break. If it were the front roller we could see it. If it were the second one we might not notice it for sometime, or, if there is an absence of smooth, steady running of the back steel roller, as sometimes is the case, if the nut comes off at the back roller gear and permits that gear to become loose, this will cause a large number of ends to break in that manner and is easily distinguished from the other. If such an accident should occur on the speeder, we might have this same thing, but not exactly in the same way. It would occur on several frames, and about the same size of roving, unless all the roving should be put on one or two frames.

It is sometimes difficult to locate the trouble when it reaches back of the spinning. If this thin place should come up but once in the same roving, as when a carder changes a tooth on his pinion, and allows the back roller to lose some of its revolution, we may find it a difficult matter to locate the mischief. I have found the ends to break down in this manner but only once in the same roving and at a different place in each roving. This may be caused by the carder setting his rolls while the speeder is running, thus stretching the roving. It may be hard to convince the carder that such is probably the cause. Still it is well to know how some of the bad work is caused.

Colored cotton is subject to repeated changes, and overseers may alter things at times to suit their own convenience, regardless of the subsequent effect, so that a spinner should have a good knowledge of other branches of the work if he expects to show up to good advantage.

To return to the rollers. In the cases spoken of, the leather may be in good condition; in fact it may have run but a short time; if so, place it between two smooth boards and endeavor to reduce the ridge by rolling it back and forth. Very often upon returning it to the cap bar, the trouble has entirely disappeared. The better way would be to have no occasion to practice such methods.

Leather rolls need more frequent renewal on colored work than on white, as the dye is more or less destructive to the life of the leather. Cleaning and varnishing these

rollers is a very good procedure, but it must be closely attended to, otherwise it were better to leave it alone. Rollers that have been used on fine work may be put into frames that are on coarse colored work, sometimes, without injury to the latter.

It is the practice in some mills to combine two colors in one roving for certain classes of work (black and white, for instance) but this is very unsatisfactory so far as having a presentable piece of cloth to show for the labor bestowed. Much better results follow by taking two rovings of different colors and doubling them back of the spinning. Sometimes there is a great difference in the size of the two rovings (the usual mixture of the writer's for black and white codet being one hank black and three hank white) yet they both have to be drawn and spun together. This will be found to present some difficulties in accomplishing, as the finer strand will not get as even drawing as the coarser. Owing to the smaller size, the top roller does not get the same grip on it as it does on the coarser one, and when there is much twist present in the finer one it will oftentimes draw through without undergoing any change in size. This is frequently the case where the roving is uneven, which forces more twist into the thin places and so makes the draft at that point so much the more difficult.

The only way in which two rovings of such unequal size can be satisfactorily run together is to have the coarser roving with as little twist as possible. This will allow it to spread over the surface of the rollers to a greater extent, thus giving the top rollers a more close contact with the fluted ones and increasing the chances of having a firmer grip on the finer and smaller strand. The finer roving should be as even as possible, and have no excess of twist, and the rolls should be set to work the coarser roving. It might be possible to get a close imitation of this cadet yarn by using a two hank black roving and a two hank black and white from the speeder, these two being of the same size, would draw together nicely and make a yarn that would still be a three to one black and white but it would not be so good except for very rough coarse work.

In spinning yarns where two different colored rovings are used, some spinners advocate using a heavy traveler so as to break down the thread when one of the rovings is stopped in order to avoid "single" in the work. They claim the help are careless and will often allow the single to run on thus making considerable trouble later on. There may be some truth in the position taken, still I do not consider the practice a commendable one, especially if the traveler is heavy enough to injure the yarn in any way. If it does not there is no objection to this method of overcoming a serious evil. Where the difference in the size of the two rovings is great, it would require too heavy a traveler for good work to produce sufficient strain to pull down the remaining thread if it were the finer roving that had stopped. Even if the rovings were of equal size it would necessitate a pretty heavy traveler, especially if the work was even.

Very often these fine rovings will break out and after a while catch on again. This is a very serious circumstance and should be prevented by the only certain and safe means, and that is to make the finer roving of a better quality; in other words—more even. More twist would prevent the breaking also, but it is a question whether it would not be productive of other troubles. In case of more twist we might have to spread the rolls. Very often where the roving pulls through, entire relief may be found in a higher speed with the same position of the rolls. A high speed of the front roll causes the fibres to pull apart more easily just as in breaking a cord a sharp, quick pull will accomplish it, when a stronger pull, if slower, would fail to effect that object, and if not driving the frames too fast, it would be advisable to speed them up, if possible, rather than to spread the rolls, because it is only at times these difficulties occur, and outside of these cases the rest of the work would suffer the effects of rolls set too wide.

I have stated that too much drawing is bad for colored stock and where the yarn is for filling it is advisable to split the web on the card into four or five strands and run into coiler cans. Put these cans directly at the back of a specially built slubber and spin into roving. Put this roving directly into the creel of the ring frame and spin into any number—10s or lower. If the yarn is for finer then 10s a second system of roving may be necessary.

Going After Southern Business.

The Atlantic Dyestuff Company, Southern Branch, Rooms 705-706-707 Commercial National Bank Building, Charlotte, N. C., have well equipped offices and a splendid laboratory and are prepared to handle their share of the dyestuff business of the South.

This company specializes in sulphur blacks, sulphur blues, sulphur browns, direct blues, direct greens, and direct yellows, made at their factories at Burrage, Mass. In addition they will handle a full line of direct and developed colors. The main office of this company is located at 88 Ames Building, Boston, Mass.

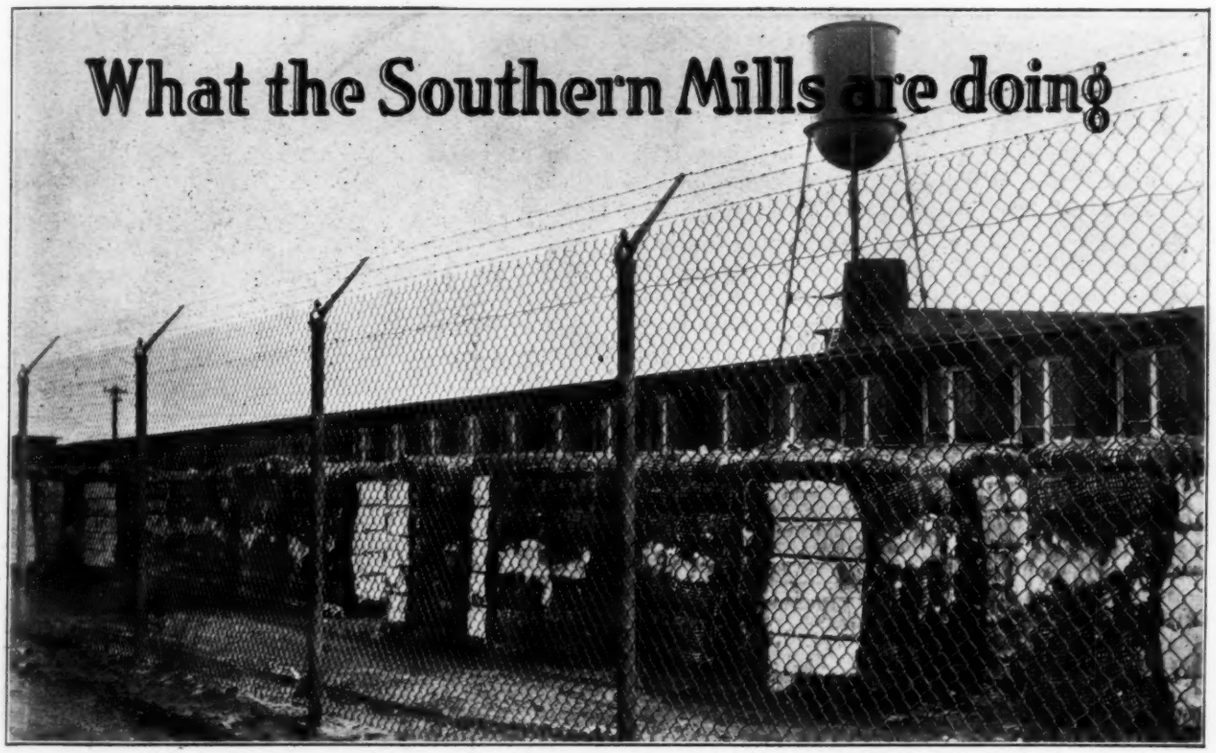
R. J. Walker is manager of the southern office. W. C. Dodson will be in charge of the laboratory and visit the mills in the vicinity of Charlotte. His territory will also include the South Carolina mills. Captain Jim McDougall will represent this company in the Greensboro territory—Salisbury to Danville, and from Winston-Salem east in North Carolina and all of Virginia. W. S. McNab will have charge of the Tennessee, North Georgia and North Alabama territory. H. A. Rodgers will handle the Atlanta territory, including most of Georgia, Alabama and Louisiana.

This should prove a strong selling organization. Mr. Walker is a seasoned, well posted and aggressive sales manager, and is well and favorably known by the textile trade. The men associated with him have specialized in the study of textile chemistry and dyestuffs at the North Carolina College of Agriculture and Engineering, and the Georgia School of Technology; have also had thorough practical dyehouse training and are prepared to demonstrate their products in the mill dyehouses when required.

This company has ample means to conduct its business on a large scale; its factories at Burrage, Mass., are most modern in every detail, and they will, from time to time, offer specialties of the highest quality.

ELLIOT REID, former assistant to the general manager, on July 1st became sales manager of the Westinghouse Lamp Company, and in that capacity will be responsible for the commercial activities of the Company in both large and miniature classes of lamps in domestic territory.

What the Southern Mills are doing



THE ALDORA MILLS AT BARNESVILLE, GA.

With the many announcements from different mills in the South that the capital stocks of the firms are being increased and additional buildings will be erected to take care of the fast growing increase in output of the plants, the vastness and importance of the production and manufacture of cotton in the South looms up in the public eye.

Just at the present time cotton manufacturers, particularly in the South, are busy having their plants enlarged and their present equipment improved upon. It will also be noted that this constructive work is, for the most part, being carried on by men experienced in the cotton industry, men who are themselves thoroughly conversant with the present exigencies and therefore foresee the opportunities and advantages of the cotton manufacturing field in the immediate and long future.

Right at this time there are new plants and additions to old plants going up, to be equipped with the most modern machinery, at an aggregate cost of millions of dollars. The steps forward which these experienced and far-sighted manufacturers of cotton goods are taking means much more than can be realized. The opening of export markets and the present wonderful demand by domestic buyers means much for those plants which have been enlarged sufficiently to care for the sudden influx of business and the constantly growing demand which will come in the next few years.

The recently announced addition at the Appalachian Mills, Knoxville, Tenn., practically doubles its present size. Four thousand spindles and accompanying equipment are being added.

The addition for the Knoxville Spinning Company, which has received previous mention in these columns, will be a new mill with 8,500 spindles and accompanying machinery.

Another new mill for Knoxville, Tenn., will be known as the Superior Mills. The plant will be capitalized at $300,000 and the incorporators include M. G. Thomas, M. M. Thomas and M. B. Melendy. This new mill will have 8,500 spindles and will make fine combed yarns.

The additions being made by the Cannon Manufacturing Company at Kannapolis, N. C., will include approximately two 20,000 spindle mills and a 50,000 spindle mill. One of these mills is to be used as a waste plant.

A previous reference has been made of the Columbus, Ga., plant of the Bibb Manufacturing Company and it has been learned that the new equipment for this plant will include 52,840 spindles, 390 cards and other equipment.

With an addition to the present mill in sight, the Cherokee Spinning Company, of Knoxville, Tenn., has increased its capital stock from $200,000 to $600,000.

A change of management in every department except one was made recently by the Anderson (S. C.) Cotton Mills. James Cathcart, who was made secretary and assistant treasurer, was the only one of the former officials retained. James D. Hammett was succeeded as president by W. C. Langley; James D. Vandiver, vice-president, by George E. Spofford, who will also be general manager of the mill. The new treasurer is George C. Leonard.

The fall meeting of the Southern Textile Association will be held in Charlotte October 24 and 25.

The Rhyne-Houser Manufacturing Company, Cherryville, N. C., has been incorporated with a capital stock of $500,000, for the purpose of making high grade combed yarns. Dr. W. H. Houser and C. A. Rudisill, both of Cherryville, and D. E. Rhyne, of Lincolnton, are the incorporators. Two hundred thousand dollars of the stock has been subscribed.

The Johnston Mills Company, a yarn selling agency, which will handle the output of 11 textile mills, has been

organized in Charlotte. C. W. Johnston is president. His son, R. H. Johnston, is vice-president and J. S. Wilcox was made secretary.

The Waltmore Thread Mills Company, with a capital of $500,000, was recently organized in York (S. C.), with the manufacture of cotton cloth and thread being contemplated by the petitioners. Following the organization of these mills, a movement has been started for the establishment of another cotton mill in York, with a proposed capitalization of $400,000, two-thirds of which sum has already been subscribed. Construction of this plant has, however, been postponed indefinitely, because of the rapid advance in the price of materials.

The Hamilton Carhartt Mill, of Rock Hill, S. C., is contemplating improvements to cost approximately $75,000, on the two Carhartt Mills. Installation of new machinery will be made and twelve new houses will be built at one of the mills and six at the other.

New machinery has been installed by the Highland Park Mill, Rock Hill, S. C.

operated 700 Draper looms by individual motors. A large finishing room equipped with most modern machinery and a dye house will be added to this building.

The Double Shoals Cotton Mill, near Shelby, N. C., has been recently sold to a company of Shelby men and has been rechartered under the name of the Double Shoals Manufacturing Company. The new owners are O. Max Gardner, A. W. McMurray, Graham Dellinger, Z. J. Thompson, D. D. Wilkins, G. A. Hoyle and S. S. Royster, all of Shelby, and C. F. Dalton, of Charlotte. Of the capital stock, the sum of $100,000 has been paid in. The mill was built in 1892 by Elias Morgan and associates and is now making a coarse yarn. Officers have not yet been elected. The retiring controllers, Elias and Fred Morgan, have not as yet announced their plans for the future.

Following a meeting of the stockholders of the Shelby Cotton Mills, it was announced that an extension, at a cost of from $75,000 to $100,000, would be made to the plant of the company. The improvement will consist of a two-story brick building with a length of 83 feet. This structure will

TRUCKS OF COOPER & GRIFFIN, INC., GREENVILLE, S. C., HAULING COTTON TO CUSTOMERS.

Marshall P. Orr and Woodward Baldwin & Company, of New York, have purchased more than two-thirds of the stock of the Inverness Mills, Winston-Salem, N. C., the capital stock of which amounts to $164,600. It was announced that Mr. Orr will assume charge of the mills.

Myers Mill, Inc., is the name of an organization recently formed, with a capital stock of $500,000, for the erection of a new cotton mill in Gastonia, N. C. It will manufacture carded and combed yarns, 20s to 40s, and will be of a 10,000 spindle capacity. A. G. Meyers is the promoter of the new enterprise and associated with him is C. B. Armstrong.

Contracts have been let by the Roanoke Rapids (N. C.) Mills for the erection at their No. 2 mill of a weave room, 274 feet long by 157 feet 8 inches wide, in which will be house 5,000 additional spindles, 80 looms and additional carding machinery. A handsome office building was only recently finished for this company and is now in use.

Announcement has been made that R. Hope Brison and associates, of Gastonia, N. C., had purchased the controlling stock of the Capitola Manufacturing company, located at Marshall, N. C., and that Mr. Brison will be made secretary and treasurer of the mill. The mill is of 10,000 spindle capacity and manufactures cotton yarns Nos. 20s and 40s.

Plans are being made by A. C. Lineberger, of Belmont, N. C., and business men of Salisbury, N. C., for the erection at Salisbury of a new cotton mill, to make yarn for automobile tires. The plant will be put up at a reported

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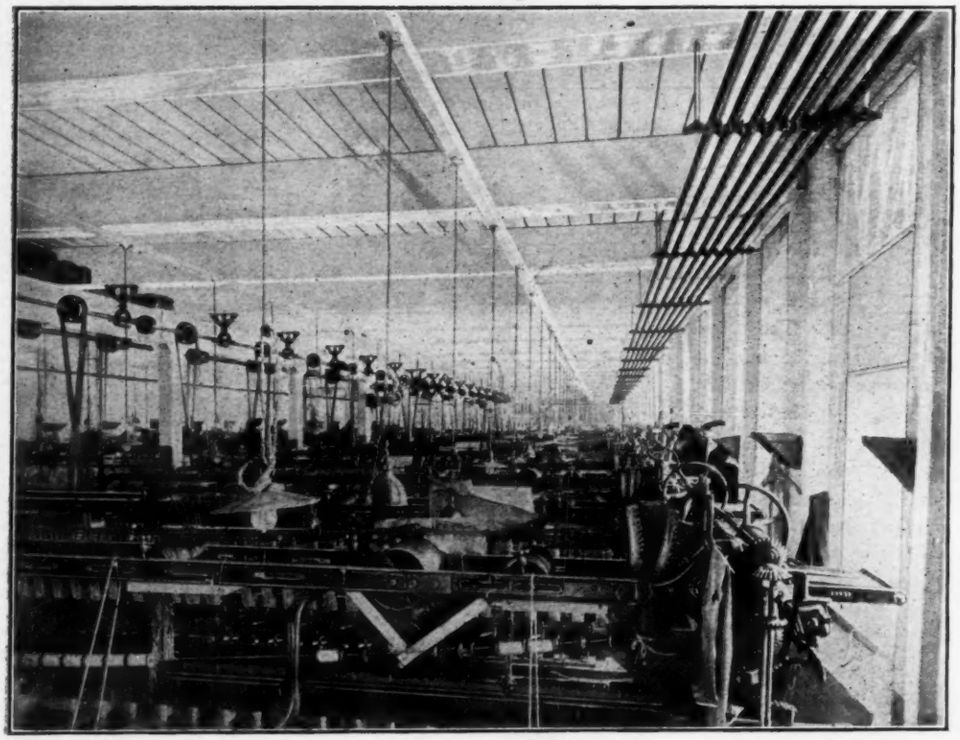

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cost of $250,000. Option has been taken on a number of possible sites for the new mill.

A $300,000 cotton mill, which will operate 25,000 spindles, is to be erected at Gaffney, S. C. The promoters are E. R. Cash, J. A. Carroll, Dr. W. C. Hamrick, D. C. Ross, Maynard Smyth and T. B. Butler. Nearly all the capital stock has been subscribed for and it is the belief of the promoters that the mill will be in operation before the end of the year.

Erection of the Cedartown (Ga.) Cotton and Export Company's additional mill will be made under the supervision of A. V. Gude, of Atlanta, engineer-architect. The plans provide for a building to cost $38,000, with a capacity of 10,000 spindles.

B. B. Comer, of Birmingham, Ala., and associates have closed a deal which gives them control of the Alexander City Cotton Mills, the Sycamore Mills and the Pell City Mills. The Hunter Manufacturing and Commission Company has been appointed selling agents for the two cloth mills.

The Rowan Cotton Mills Company, of Salisbury, N. C., which was projected by W. F. Snider and associates, has been incorporated with $400,000 authorized capital stock, $100,000 of which has been paid in.

The Ivy Damask Mills, of Salisbury, N. C., has purchased 12 Stafford looms.

A 5,000 spindle yarn mill is being planned by the Chamber of Commerce, of Bristol, Tenn.-Va., of which C. W. Roberts is secretary.

A. H. Robbins, superintendent of the Lancaster Mills, Lancaster, S. C., has purchased an interest in the Springstein and Eureka Mills, Chester, S. C., and took charge as general manager of both plants about the first of August.

Work has been started by the Avondale Mills, of Birmingham, on the erection of a new mill, to be known as the Katherine Mills, at Sylacauga, Ala.

The LaFayette (Ala.) Cotton Mills has been organized with a capital stock of $500,000. Incorporators are J. A. Hines, A. J. Driver, Jr., J. E. Stanley and others.

The controlling interest in the Baldwin Mills, at Chester, S. C., has passed from the Baldwin estate to J. P. Stevens and Company, of New York, which is largely interested in Southern textile plants.

It is reported that Woodward Baldwin & Co. have purchased a controlling interest in the Georgia Cotton Mills, at Griffin, Ga.

The advantage of the combination of good roads and motor trucks is shown in the statement of W. S. Griffin, president of Cooper & Griffin, Inc., Greenville, S. C., dealers in cotton. Mr. Griffin says:

"Our reason for using trucks was two-fold: First, the saving in freight costs; second, more prompt and efficient service to our customers.

"At present, we are handling annually on these two trucks, about 20,000 bales of cotton; saving over present freight rates amounts to about 75c per bale; the radius of hauling is about 30 miles; the average 15 miles; average load per truck of uncompressed cotton 18 bales of 500 lbs. each; average load of compressed cotton 27 bales of 500 lbs. each.

"Each truck can cover about 74 miles per day; this, of course, is only made possible by the excellent roads of Greenville County."

The New England Mill Situation.

The market demand for goods is far in excess of anything hitherto known in this section and the supply is very limited. Prices have risen so fast as a consequence of persistent bidding on the part of buyers that manufacturers would much prefer to see values stabilized around the present levels until assurance can be given of a continuing retail distribution at the higher prices that must prevail at the counters.

Many manufacturers have been declining to sell goods at any price and they find this a very difficult policy to pursue. Buyers for converting did not provide for their full requirements in the earlier months of the year and the buyers who did so have been able to name their own prices on any gray cloths coming on contracts. The established converters whose business has grown as the months have gone on since March are now in a position where they must have more goods at some price in order to hold their place in the trade. They are appealing to manufacturers who have supplied them to take on additional business and to appeals of this sort any prudent manufacturer must listen.

Some of the converters and others who cancelled their goods and demanded rebates after the armistice, have been coming forward recently offering to reinstate any old orders and to bear the expenses of the manufacturer in the meantime. They are doing this merely to reinstate themselves with mills they thought they would not need again and to see if they cannot get back where more goods will be sold to them. Few manufacturers are willing to listen to appeals of this sort, nevertheless, there are obvious reasons why mills cannot always decline business offered at top prices when cash payment or any other form of guaranteed payment may be had for the asking.

The buying for spring has reached the point now where converters and others want the mills to duplicate orders at their own prices and this is happening in cases where mills are already sold ahead into January and February.

The price advances of the month have been spectacular in a number of instances. Staple tickings were held at value for some time around 30c a yard for 8-ounce goods. The price was advanced to 45c a yard in order to place the goods on a parity of value with other merchandise in the markets. Every buyer who had tickings on order confirmed at 45c a yard and in some instances they bought additional goods when the new price was named. Some of the leading lines of eastern made denims have been withdrawn from sale as the mills are quite unable to do more than apportion the product among buyers who have been regular traders for years and who have established made up goods in their lines in which these fabrics have been used. In this way the mills are trying to conserve their own future interests and at the same time giving the garment maker a chance to conserve his merchandising interests also.

The demand for cheviots, and other working suit materials of the choice grades has been far ahead of anything anticipated and most of the leading lines are sold ahead to the end of the year or as far as mills will accept business. It is impossible for the mills making some of the standard lines to supply even their regular export customers, not to speak of supplying the added demands from the home trade.

Several of the lines of spring dress ginghams have been allotted to cost not less than government prices, and in some instances perhaps more. Buyers have come forward and laid down orders for nearly twice the amount mills can make and it has been necessary to restrict the business and allot the expected product. Several of the very fine qualities that were discontinued during the war have been reinstated and will appear in the markets for spring. They are wanted more eagerly than the lower priced regular lines and there seems to be no question among cutters or jobbers of selling them at any price that will be charged. Most of the newer ginghams are offered in smaller designs than last year, although many large plaids for cutting up purposes are being made.

The print cloth markets have continued their wild career. By the middle of the month the highest prices of last year, reached before the government stepped in, had been touched, and buyers had bought in 25,000-piece lots for delivery to the end of the year. For 38½-inch 64x60s 18¾c was paid, for 4-yard 80 squares, 28c, and for 68x72s, 22½c. Some of the largest shirt and collar manufacturers came forward and bought 72x76s at 23c and 24c. The mills are short of stocks of both staples and odds and most mills are being asked to deliver goods in excess of the buyers' orders if such a thing is possible. The matter of cotton and labor costs is rarely mentioned in trading, the profit margin being wide enough to permit wide fluctuations in quotations before costs become a matter of serious concern.

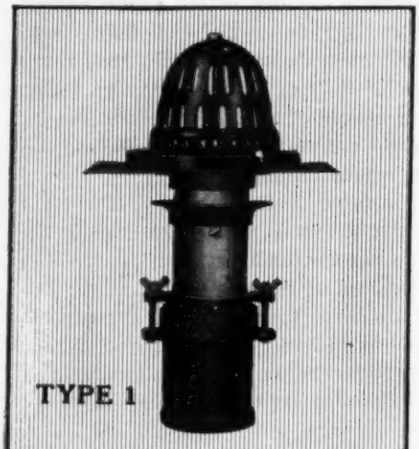
Bleached cottons have risen steadily, but in the case of nearly all the leading branded goods, the price for the finished product has been at about the level of price procurable at any time for the cloth in the gray. One owner of a very famous bleached brand said recently that the brand has become a liability rather than an asset, owing to the inability to sell the finished product at a profit based upon gray and finishing costs. Wide sheetings are sold ahead for months on some widths. The scarcity of pillow tubings has become very marked. Prices are very much higher than the government levels.

Prints have been advanced in the interval to a basis of 18½c a yard, 2c over the price of last year. Large export orders are in hand and many others have been declined. The printers of percales have made two advances and have been forced to withdraw from the future market until they can catch up with past orders. Serpentine crepe for spring has been priced by the Pacific mills at 30c a yard. The demand for printed voiles has been larger than ever before and these goods are being ordered in large quantities for early spring as well as for spot shipment.

The buyers who declined to take blankets and napped cottons six months ago and even three months ago because prices were too high are now pleading with mill agents for additional deliveries for fall. The buyers have found their stocks too small to meet the overselling of many road men and there is likely to be a dearth of many of the standard goods for the next three months. The pressure for more goods has finally forced the Nashua mill to decide to erect a new plant of 25,000 spindles at Nashua, N. H.

Four months ago the business on quilts and on the grades of towels made in New England mills was about as slow and unprofitable as anything on the list. Today every

Use Holt Roof Connections with Barrett Specification Roofs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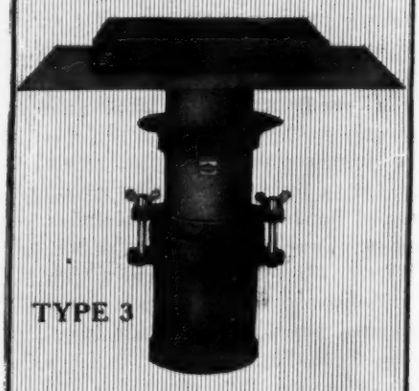
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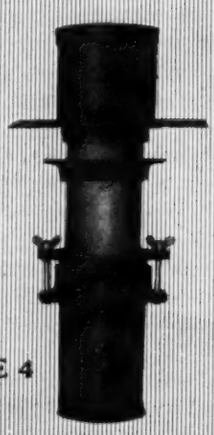
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TYPE 6

Watertight, Flexible, Permanent

Holt Connections are just as permanent as Barrett Specification Roofs. They are made of heavy cast iron, brass and copper and are adaptable to all types of roofing on buildings having interior drainage.

But permanency is not the only factor necessary for the successful roof leader or vent connections.

Holt Connections are positive safeguards against the most severe cases of shrinkage, settlement and vibration in roof or building.

Holt Connections withstand expansion and contraction. Unlike the ordinary metal outlet boxes, quick changes in temperature which affect the leader lines will not push them out of place and thereby cause leakage. The Holt Expansion Joint provides a permanent, flexible water and gastight connection, and permits a range of movement of the leader lines of from 1½ to 3 inches, according to type of connection used, and construction of leader lines and roof decks.

Holt Connections are made in a variety of types and sizes, to meet every need for a high-grade, dependable roof leader, vent, pipe, brace, or flag-pole connection.

Even a poor roof is made better by the use of Holt Connections.

They have never failed.

Send for details and Specifications.

The Barrett Company

New York, Cleveland, Birmingham, Milwaukee, Chicago, Cincinnati, Kansas City, Washington, Philadelphia, Pittsburgh, Detroit, St. Louis, Minneapolis, Johnstown, Boston, Dallas, Seattle, Nashville, Lebanon, Peoria, Columbus, New Orleans, Salt Lake City, Latrobe, Buffalo, Duluth, Elizabeth, Toledo, Bangor, Atlanta, Richmond, Bethlehem, Baltimore

THE BARRETT COMPANY, Limited:
Montreal, Toronto, Winnipeg, Vancouver, St. John, N. C., Halifax, N. S., Sydney, N. S.

quilt mill is sold ahead while towel mills are complaining constantly of inability to secure yarn or to fill orders for goods priced without regard to what values were only two months ago. All of the mills engaged in any kind of work suitable for the automobile trade are behind on orders as the business has continued to expand wonderfully. The Manhasset Company recently purchased the Cohannet Mills at Taunton, Mass., to secure a supply of fine yarns for tire fabric purposes, and Taylor, Armitage & Co., have been in negotiations looking to the purchase of some other plants of the former New England Cotton Yarn Co. The Lincoln mills of Fall River have decided to order 15,000 more spindles and the other necessary equipment to fill out the vacant space in their No. 2 mill, built some time ago but not fully equipped because of war conditions.

Many plans are being pressed looking toward additions and renewals of plants and the machinery men continue to turn down business of all kinds. They are very busy and are selecting their own work at their own prices and from their own customers. This condition bids fair to last for many months to come, the machinery output being restricted only by the ability to secure labor enough to do the work in sight.

The finishing plants are securing plenty of offers for business and are able to command higher prices for many sorts of new work. The printers are rushed. The bleachers are as busy as their limited operative capacity will permit. The piece dyeing and other finishing works are securing more business all the while and their chief complaint is labor scarcity.

Labor conditions are unsettled to some extent but beyond a threatened strike at Fall River by doffers, who have been acting to secure a uniform wage in different mills, they are not any more troublesome than they have been. New Bedford mills are running better than for a long time past. The northern New England mills are gradually getting many operatives back although they are still unable to maintain a capacity output.

Much interest attaches to the rising prices of mill stocks and the general readjustment of mill investment values. Stocks that never paid more than 6 per cent for years are now quoted at $190 a share and the feeling grows that prices will finally become so high that a lessening of tightly held shares will be seen. The under-capitalization of New England mills is now troubling many holders of stocks as well as many mill managers. The purpose was to prevent taxation and to avoid hopes of earnings that could not be realized. Today earnings and taxes have changed so much in their relations to each other that old holders of mill properties are wondering whether it will pay them to hang on or to pass the ownership to those who want the properties more than they do.

There have been very few changes of ownership so marked in their way as that seen in some of the southern mill properties and wherever they have occurred they have not been prompted by any desire to change selling agencies. Most of the important changes have come as a result of the growing needs for special cloths to be made in mills equipped to serve the automobile and other large manufacturing trades.

World Cotton Conference, October 13, 14, 15 and 16.

Cotton Comment.

BY H. AND B. BEER.

New Orleans, July 16th, 1919.

The lifting of the blockade against Germany, permitting commercial intercourse with Central Europe for the first time in five years, is looked upon as the most important development for trade expansion ultimately. Prior to the war Germany and Austria consumed annually about 3,000,000 bales of cotton, most of which was American, approximately 2,000,000 bales.

The high prices for the staple are, in a measure, due to that fact, but more so to the unfavorable outlook for the new crop, the trade being threatened with the fifth consecutive short crop. Climatic conditions in the cotton region were so unfavorable during June, which followed a wet May, that returns to the government, as of date June 25th, averaged the condition of the crop at only 70 vs. 85.8 last year, and the ten year normal of 80.3, and the decrease in acreage was placed at 8.7 per cent compared with one year ago—33,960,000 acres against 37,207,000.

Deductions on the foregoing basis denote a yield of only 10,986,000 bales exclusive of linters, more or less eventually, dependent upon future weather conditions.

As a result, and because of the continuance of the urgent demand for cotton goods and for cotton for export, values almost reached the highest prices witnessed during the war. As a matter of fact cotton goods are now as high as they were quoted before the armistice, in some instances higher.

So far this month climatic conditions in the interior have been more favorable for progress of the crop, but their effect seems to be offset by weevils increasing and becoming more destructive. In Texas the crop is reported to be fruiting poorly owing to weevils and recent heavy rains. Fear is entertained that the next bureau report will show little or no improvement in crop prospects on that account.

Compared with last season the Census Bureau recently issued the following report for June and for 11 months of season: Including linters. Consumption in United States during June 489,000 bales vs. 618,000, for 11 months 5,692,000 against 7,036,000. Mill stocks in United States at close of June 1,365,000, compared with 1,673,000, stocks in public storage 2,784,000 vs. 2,116,000, total stock in United States June 30th, 4,148,000 against 3,789,000.

The demand for cotton goods continues urgent, with values tending higher owing to the presence of a large number of domestic and foreign buyers. Mill production is limited owing to shorter hours and scarcity of labor, resulting in the supply being inadequate for the demand.

Exports of raw cotton to Europe promise to total 5,500,000 bales for the season. Now figuring 5,355,000 bales compared with 4,126,000 to even date one year ago. However, two unfavorable developments have come to the surface of late; the marine workers' strike and the demoralization in sterling exchange, both of which tend to restrict shipments to Europe temporarily, or until conditions improve.

Sterling was quoted at the lowest on record today, demand 4.32½, 60 days commercial 4.28, 90 days 4.26, representing a decline of about 10 per cent compared with normal. This development, we believe, is partly due to heavy offering of bills, indicating large business ahead. In 1915,

when sterling was at its previous low record, the decline was due to enormous buying by Great Britain of war material for her own account and for her allies. Therefore, the present weakness in foreign exchange is undoubtedly due in part to commerce expanding. Chances are that the marine workers strike will be settled soon, after which exports will likely be large again. The strike affects American ships only.

The future of market will probably depend mainly upon trade advices, particularly concerning the expected demand from Germany, and progress of the growing crop.

Lancashire Notes.

BY AN ENGLISH CORRESPONDENT.

I have left these notes as long as possible, in order that I might be able to record the settlement of the hours and wages dispute, but the next mail must now be caught. The operatives' notices are running out. A conference was held at the Ministry of Labor in London, after which it was anticipated that the trade would know its fate—or at any rate have a good idea. If the employers made no advance on their previous offers there would be a strike, but any new offer would have to be submitted to the operatives and as so little now divides the parties it would have to be a very small concession indeed which would not be accepted. However, the London conference was brought to naught by the non-appearance of representatives of the Master Spinners' Federation. The Federation had, of course, been invited and was understood to be sending representatives, but at the last moment declined to do so. As a result, the conference was adjourned, to be resumed in Manchester the day after I am writing. The employers' offer now stands at 48 hours a week and a 25 per cent advance, against the demands of the trade unions for a 46½ hours week and a 30 per cent advance, the advance in both cases being on the standard wages list. This in the case of the operatives would mean a rise of about 12½ per cent in actual money paid to them. It seems probable that both sides will recede and that 48 hours and a 30 per cent advance will result.

An important move has been made for the development of research in connection with the cotton industry. During the war the government set up an Advisory Council of Scientific and Industrial Research, under the auspices of which government assistance was to be given to industries, under specified conditions, for the carrying on of research. Roughly, the conditions were that an industry should form a research association and provide a certain proportion of the funds. This the cotton industry has now done by the formation of the British Cotton Industry Research Association. The articles of association show that the objects of this body are to promote research and other scientific work in connection with the production of cotton and its utilization in industry, and generally in any branch of trade or commerce using or handling cotton, whether in a raw or manufactured state, or producing machinery, accessories, substances or appliances to be employed in the production of cotton or its utilization in industry. The association may "provide and spend money as may be thought necessary or convenient for these purposes" and also "encourage and improve the education of persons who are engaged, or who are likely to be engaged, in the industry." The association aims at the erection in Manchester of a Cotton Research Institute, but until that is accomplished the work is to be carried on at the Manchester School of Technology.

The plans of the association embrace a great variety of activities. They include a museum for the cotton industry, workshops and experimental factories, stations in the various cotton fields throughout the Empire, for the study of problems connected with the cultivation of the staple, inquiry into the merits of inventions and other suggested improvements as well as designs and materials and the acquisitions of patents or licenses in connection with inventions and also into the acquisition and registration of standardization marks. Provision is made in the constitution for cooperation with other research bodies.

It is estimated that there will be an expenditure of £20,000 for the first five years and if the association raises £5,000 a year for the first five years the government will give them a similar amount for the same period. If the association contributes more, the grant of the government will be increased. Firms joining the association will be levied according to their capital, those with a capital of £20,000 paying £1 annually and so on up to capitals of £1,000,000 which will pay £50. If two-thirds of the larger firms, half the smaller ones and all the great combines come into the association the levy produced in the first year will approximate to £8,000. Of the twenty-five members of the governing council of the association 13 will be nominated by the signatories of the articles of association and the remainder by the various employers' associations in the trade. The Advisory Research Council has also the right to nominate.

The British Cotton Growing Association has published its fourteenth annual report. It is stated that the Empire Cotton Growing Committee, which was appointed by the Board of Trade to investigate the best means of developing cotton growing within the empire, and advise as to necessary government measures for this purpose, has now been pursuing its inquiries for a year and has taken much valuable evidence. As an illustration of the seriousness of the the position of the world cotton supply, the report points to the fact that the proportion of the American crop consumed in American mills rose from 54 per cent in 1916-1917 to 58 per cent in 1917-1918. During 1918 29,190 bales of cotton passed through the hands of the association with a value of £1,410,837. A comparison with the 1913 figures, when 47,466 bales were priced at £661,227, strikingly illustrates the rise in values. During the last six years the amount of cotton grown in new fields in the British Empire is estimated as follows in bales of 400 pounds: 1913, 72,800; 1914, 82,350; 1915, 75,200; 1916, 78,800; 1917, 72,600; 1918, 54,900. The report adds that, with the termination of the war, the outlook for developing cotton in different African colonies and protectorates was never brighter. Schemes which are now in contemplation will, it is confidently anticipated, lead to considerable expansion of the cotton-growing industry within the next few years.

Trade here is steadily reviving and the outlook, apart from the prospect of a strike, is quite bright. The Board of Trade returns of imports and exports for May tell their own tale. In that month there were 1,245,585 centals of 100 pounds of raw cotton imported with 937,326 and 936,269 in the corresponding month of 1918 and 1917 respectively.

Yarn exports in May totalled 16,756,280 pounds as against 8,914,200 pounds a year ago and 10,428,800 pounds in May, 1917. Of all kinds of manufactured goods there were exported 256,326,800 yards, as against 403,190,300 and 475,567,300 in May, 1918 and 1917, respectively. The decline in the export of piece goods is, of course, due to the cessation of hostilities during which enormous quantities were, for example, sent to France. The true tendency of trade, however, is shown by the 46,000,000 yards taken by Belgium, Denmark and the Netherlands which last year bought hardly anything.

The Yarn Market.

July brought no noticeable change in the condition of the cotton yarn market. A steady rise in price, brought over from the previous month, continued to prevail. During the early part of the month, sales seemed to lag. A majority of the manufacturers were busy taking stock and those that did buy limited their purchases to their absolute needs. This was true especially in the Philadelphia markets. However, in some of the other markets, manufacturers placed orders for large quantities. In the early days of the month a frenzy of speculation came over many buyers and the product jumped from one to five cents in price between sales.

The situation seems to have placed itself in the hands of the sellers. They are laconic. If they have a price they give it. If this price is not paid, then everything is perfectly satisfactory to them. Today is one day and tomorrow is another with them. What isn't sold today will be sold tomorrow. It is no trouble now to create an apparent scarcity, despite the fact that there is no shortage of yarns. The fact that in all probability there will be a carry-over of from 3,500,000 to 4,000,000 bales of cotton seems to be of no significance to the speculative buyer.

In the opinion of dealers generally, there is no indication of a decline in the cost of yarn, or of a check in the rapid advance. However, there are a few who say that prices are now reaching a danger point where they are top heavy and will be a burden to carry or to pass along to the ultimate consumer. At present, no disposition is being shown by the consumers in general to offer any resistance to the steadily climbing prices, the effect of which has now reached them, but there are several factors holding the belief that buying will soon be checked. So far, this position has not been reached.

Cotton seems to have a stimulatory effect on the firmness of the spinners on prices, as it, also, has shown a stronger attitude following the recent report of the Government on conditions.

Weaving yarns continue to be in good demand from most of the mills, with the main interest centered on 30s and 20s two-ply warps. Knitting yarns are also coming into prominence. The demand for 22s single combed during the past month was especially noticeable.

The latter part of the month showed no change in conditions, other than the average price of the market was steadily advancing, with no promise of a decline soon.

When writing to an advertiser always mention COTTON. It aids the advertiser and it helps us.

Some New Constants for Fifty-Five Hours.

BY F. GORDON COBB.

Extracts from some data prepared for a note book to be published by the F. C. Hitchcock Company, 67 Chauncy street, Boston. Copies of the book may be obtained gratis from the company or by addressing Fred B. Crowell, Greenville, S. C.

CONSTANTS FOR LOOM PRODUCTION.

To get the yards in 55 hours on looms making 160 picks per minute divide picks per inch into 14,660. This will give you 100 per cent. Examples:

$$\frac{\text{Constant } 14660}{80 \text{ Pk goods}} = 183 \text{ Yards } 100\%$$

$$\frac{\text{Constant } 13200}{80 \text{ Pk goods}} = 165 \text{ Yards } 90\%$$

$$\frac{\text{Constant } 12466}{80 \text{ Pk goods}} = 155.8 \text{ Yards } 85\%$$

TO FIND THE 60 YARD CUTS FOR 55 HOURS.

Divide picks per inch into constant numbers. Examples:

$$\frac{\text{Constant } 244}{80 \text{ pks}} = 3.05 \text{ Cuts is } 100\%$$

$$\frac{\text{Constant } 220}{80 \text{ pks}} = 2.75 \text{ Cuts is } 90\%$$

$$\frac{\text{Constant } 208}{80 \text{ pks}} = 2.6 \text{ Cuts is } 85\%$$

TO FIND PRODUCTION ON SPINNING AND FLY FRAMES.

To get the hanks a spinning frame should produce in 55 hours at 100 per cent, multiply speed of front roll by .343.

Example: A spinning frame running at 108 revolutions per minute—

$$.343 \times 108 = 37.04 \text{ hanks.}$$

To find the pounds produced when hanks are known. Multiply the hanks by the number of spindles on the frame and divide by the number of yarn. Example:

$$\frac{37.04 \times 224 \text{ Spindles}}{30\text{s Yarn}} = 276.5 \text{ pounds.}$$

To get the hanks a speeder should produce, divide the front roll speed by 2.59. This will give the hanks for 55 hours at 100%. (Front roll 1⅛").

Example: Front roll making 90 r. p. m.

$$\frac{90}{2.59} = 34.7 \text{ hanks} = 100\%.$$

To find the pounds when the hanks are known.

$$\frac{34.7 \times 160 \text{ Spindles}}{6 \text{ Hank roving}} = 925 = 100\%$$

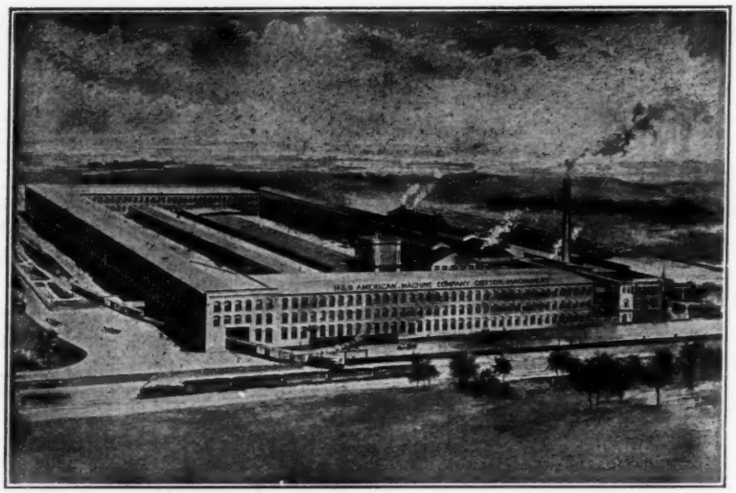
C. E. RILEY, Pres.
Boston Office
161 Devonshire Street

Southern Offices
814-815 Empire Bldg.
Atlanta, Ga.

COTTON MACHINERY

Opening and Picking Machinery

Card Room Machinery



Spinning Room Machinery

Twisters for Wet or Dry Work

With Band or Tape Drive

H. & B. AMERICAN MACHINE COMPANY
PAWTUCKET, R. I.

TO FIND THE WEIGHT OF A WARPER BEAM.

$$\frac{\text{Warps} \times \text{Yds. to Warp} \times \text{Ends}}{840 \times \text{Yds. per hk.}} = \frac{8 \times 3000 \times 428}{840 \times 30\text{s}} = 408 \text{ pounds.}$$

Yarn

Suppose a warper beam is not marked and the number of ends it has on it is wanted. Proceed as follows:

$$\frac{840 \times 30\text{s} \times 408 \text{ Lbs.}}{8 \times 3000} = 428 \text{ Ends on beam}$$

Warps Yds.

To find how many warps there are on a beam where you have had a break out. Proceed as follows:

$$\frac{\text{Yds. per hk.} \times \text{No. Yrn.} \times \text{Wt. of beam}}{\text{Yds. in one warp} \times \text{Ends on beam}} = \frac{840 \times 30 \times 204}{3000 \times 428} = 4 \text{ Warps}$$

Suppose some beams have become mixed up and you want to find the number of yarn on a beam. Proceed as follows:

$$\frac{\text{Warps} \times \text{Yds. warp} \times \text{Ends}}{840 \times \text{Yds.}} = \frac{8 \times 3000 \times 428}{840 \times 408 \text{ Pounds}} = 30\text{s Yarn}$$

OTHER HANDY LITTLE THINGS TO KNOW.

39.37 Inches = 1 meter
3.28 Feet = 1 meter

It takes about 7½ gallons of water per h. p. per hour for the average boiler.

20 common brick when laid with mortar make 1 cubic foot. Therefore, to get the number of brick to build a wall, multiply the three dimensions of the wall together to get cubic feet, then divide by 20. (Or if the dimensions of the wall are in inches you must divide the result by 1728 cubic inches, one cubic foot, to reduce to cubic feet before dividing by 20).

To get the contents of a cylinder, square the diameter, multiply by .7854, then multiply by the depth in inches and divide by the 231 cubic inches in a gallon. Example: A size kettle is 36 inches in diameter and 36 inches deep.

$$\frac{36 \times 36 \times .7854 \times 36\text{″ depth}}{231 \text{ cubic inches in gallon}} = 158 \text{ gals.}$$

Or proceed as follows: Take half the diameter and multiply it by itself. Then multiply by 3 1/7 and by the depth in inches and divide by 231, which will give the same result. Example: Half the diameter of 36″ is 18″.

$$\frac{18 \times 18 \times 3\ 1/7 \times 36}{231} = 158 \text{ gals.}$$

To find how long the battery on an automobile would run the lights if the engine was not generating any current. Take the candlepower of the lamps and divide by the voltage. This will give the amperes per lamp. This multiplied by number of lamps will give amperes consumed per hour. Divide this into the capacity of the battery and the result is the hours the battery will run those lamps.

Example: 18 c. p. headlights on a 6-volt system

(*Continued on page* 663.)

Notes About Men You Know.

F. GORDON COBB has resigned as superintendent of the F. W. Poe Manufacturing Co., Greenville, S. C., to become superintendent of the Lancaster (S. C.) Cotton Mills as successor to A. H. Robbins. At the last convention of the Southern Textile Association Mr. Cobb was elected its president.

T. CROWE, who for the past five years has been second hand in the carding department at the Nyanza Mills, Woonsocket, R. I., is now overseer of carding at the Goodyear Cotton Mills, Inc., at Goodyear, Conn. Upon leaving his former position, he was presented with a gold chain and K. C. charm, a pipe with case and a purse of money.

J. H. GARRETT has resigned as assistant superintendent of the Ozark (Ala.) Cotton Mills to accept the position of overseer of carding in the Central Mills at Sylacauga, Ala.

GEORGE PHILLIPS has been promoted from overseer of carding to overseer of spinning in the Central Mills at Sylacauga, Ala.

N. McL. SAGE is now in charge of the Atlanta office of the Aberthaw Construction Company, of Boston, Mass., which opened recently.

J. M. BROON has recently moved from Greenville, S. C., to Atlanta, Ga., to make his home. His office is located at 615 Trust Company of Georgia Building. He represents the J. S. Thorne Company, the Fabric Fire Hose Company, the Belmont Iron Works and D. H. Dougherty.

FRANK MOSSBERG, formerly president of the Frank Mossberg Company, has sold out his interest in that company and contemplates starting a metal stamping business. He probably will locate the factory of his new company in Attleboro, Mass.

BRIGADIER GENERAL LAWRENCE D. TYSON, of Knoxville, has been awarded the distinguished conduct medal by General Pershing in the name of the president, "for exceptionally meritorious and distinguished services," as commander of the Fifty-ninth infantry brigade, Thirtieth division, overseas, especially for able leadership in the attack of October 8, which resulted in the capture of Brancourt and Premont, with many prisoners and much war material. General Tyson is president of the Knoxville Spinning Mill and president and general manager of the Knoxville Cotton Mill Company. He is a West Point graduate and a veteran of the Spanish-American war as well as of the world war.

A. CULBERSON, JR., has resigned as superintendent of the Dixie Cotton Mills, LaGrange, Ga., to accept a position with the cotton duck department of the Hunter Manufacturing and Commission Company of New York.

S. M. ARRINGTON has resigned as superintendent of Ensign Mills, Forsyth, Ga., and accepted a position as spinning overseer at Payne Mills, Macon, Ga.

S. C. SIMMONS has resigned as superintendent at the Springstein and Eureka Mills, Chester, S. C. He will be succeeded by M. S. Hull, of Lancaster.

A. H. ROBBINS, former superintendent of Lancaster Cotton Mills, has been elected general manager of the Eureka and Springstein Mills at Chester, S. C.

J. A. ROLAND has been elected president of the Everett Cotton Mill, Monroe, N. C.

F. C. WOOD has been promoted from spinner to superintendent of Lockmore Cotton Mill, York, S. C.

ROBERT CHAPMAN, of McColl, S. C., has been elected president of Icemorlee and Everett Cotton Mills, at Monroe, N. C.

H. L. DEARMAN, former superintendent at Davidson, N. C., is now superintendent of the Hickory Spinning Company, Hickory, N. C.

FRANK TAYLOR from the Chicago office of the Gerrard Wire Tying Machines Company, Inc., 217 West Superior street, was visiting the Atlanta office of his Company recently and going over the territory that is handled through this Southern Division Headquarters at Atlanta.

D. E. TRASK, who was formerly at Swampscott, Mass., has resigned and accepted a position at Welland, Ontario, Canada.

ORLANDO F. WEBER, president of the National Aniline & Chemical Company, Inc., announces the appointment of Robert T. Baldwin as assistant to the president, effective June 24th, 1919.

JOSEPH L. GADBOIS, who has for some time been connected with a hosiery manufacturing firm at Norfolk, Connecticut, has resigned this position and accepted a position with the Columbia Hosiery Company at New Haven, Connecticut.

ALVIN LOVINGOOD, of The Lovingood Company, Atlanta, has recently returned from an interesting trip through the Milwaukee factory of Logemann Brothers Company, manufacturers of cloth and other presses for similar work as used in the textile industry.

T. M. MCENTIRE, of Stanley, N. C., has accepted the position of superintendent of the Kershaw (S. C.) Cotton Mills.

P. A. GUY has ben promoted from overseer of cloth room to superintendent of the F. W. Poe Manufacturing Company, Greenville, S. C.

H. G. CHATHAM, president and treasurer of the Chatham Manufacturing Company, of Elkin and Winston-Salem, N. C., is in Washington preparing for a trip to Europe with the commission to study post-war trade and financial conditions. Tentative plans are to sail on August 11. Mr. Chatham was appointed by Governor Bickett, of North Carolina, as one of the two representatives of this state on the commission.

THOMAS A. DRAKE has resigned as superintendent of the Hart Mills at Tarboro, N. C.

JOHN M. GEER, one of the foremost cotton mill executives of the South and prominent citizen of Greenville for almost 30 years, died early in July after an illness of several weeks. At the time of his death Mr. Geer was president and treasurer of the Easley Cotton mills, president of the Alice Cotton mills, of Easley, and was largely interested in the Hartwell, Ga., mills, the Lois Cotton mills, of Douglas, Ga., and the Franklin mills, of Geer. He was at one time president and treasurer of each of these mills. Mr. Geer was 61 years of age.

F. A. SEEGER, who has for six years represented in the South a number of well known machine tool manufacturers, first as a direct factory representative, and later with the Seeger-Walraven Company, has resigned from the latter concern and formed the Seeger Machine Tool Company, 34 South Forsyth Street, Atlanta. Mr. Seeger is one of the most experienced machine tool men in the South, and has many friends throughout the textile field.

BELA N. BARNES, formerly of Gastonia, N. C., has accepted a position as superintendent of the Kingsport Hosiery Mill, at Kingsport, Tenn.

T. J. RUSH has accepted a position with Indian Head Mills, Cordova, Ala.

J. B. HARRIS has been promoted from overseer of spinning to assistant superintendent at the Greenwood (S. C.) Cotton Mill.

J. R. ORSBURN has been appointed overseer of spinning at Avondale Cotton Mills, Humboldt, Tenn.

GEORGE WHITTEN has been appointed spinning overseer at the Osprey Mills, Porterdale, Ga.

W. D. INGLE, formerly with the Maginnis Mill at New Orleans, has accepted a position as superintendent of Steele's Mill at Rockingham, N. C.

R. D. BALLARD, of Gibson Mills, Concord, has been appointed superintendent of Roberta Mill, Concord, N. C.

JAMES R. DOSS has been appointed spinning overseer at the Monroe (Ga.) Cotton Mills. He succeeds P. C. Johnson, resigned.

HENRY PAPPA has accepted a position with the Swift Manufacturing Company, as assistant to the superintendent.

J. H. TUCKER, of Schoolfield, Va., has accepted a position as overseer of slashing with the Aiken Manufacturing Company, Bath, S. C.

E. W. WOODSON has succeeded W. T. Love as secretary and manager of the Yadkin Finishing Company, Salisbury, N. C.

CHARLES BUSBIN has resigned his position at the Clinton (S. C.) Mills to become master mechanic at the Simpsonville (S. C.) Mills.

FRANK WARE has been appointed spinning and winding overseer at the Hampton (Ga.) Mills.

W. G. RIGGINS has been promoted at Woodside Mills, Greenville, S. C., from timekeeper to overseer of weaving.

ROSCOE O. ROBERTS has resigned as overseer of spinning at the Central Mills, Sylacauga, Ala., to accept a position in the Atlanta office of the Draper Corporation.

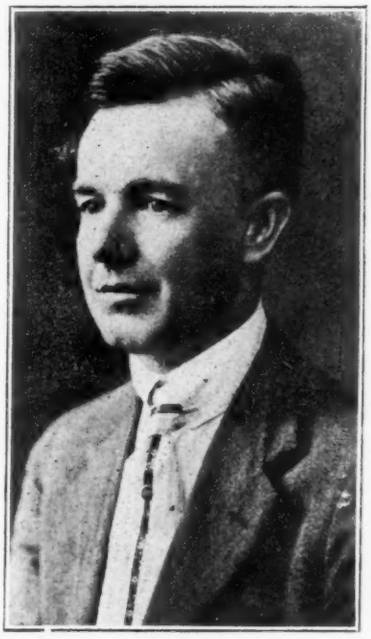
A. W. NIX has resigned as overseer of spinning in the Middleburg Mill at Batesburg, S. C., and is at present located at Westminster, S. C.

S. H. JORDAN has accepted a position as overseer of No. 3 weave room, Roanoke Mills Company, Roanoke Rapids, N. C., succeeding C. L. Boone, resigned.

O. J. PITTMAN has resigned as overseer of spinning, spooling and warping at the Victory Mill at Fayetteville to accept a similar position with the Holt-Williamson Manufacturing Company, of the same place.

W. H. JOHNSON has resigned his position with the American Mills Company, Atlanta, Ga., and accepted a position as carder-spinner at the Atlanta (Ga.) Woolen Mills.

ALLEN DEAS, who is well known in the building field as he has been covering the Southern territory, handling materials connected with the protection of building construction for a number of years, has been appointed district representative for the Ceresit Waterproofing Co., of Chicago, who are going into the southern field stronger than ever before. This company manufactures waterproofing, dampproofing and protective products for building construction. Mr. Deas, who has his headquarters in Atlanta, also represents the Bishopric Plaster Board Co., of Cincinnati, and has placed several carloads of this material in various points of the South recently. If energy, enthusiasm and intelligent effort count for anything, Mr. Deas is sure to develop to a greater extent the well-established southern business of the companies mentioned and his many friends in the textile field wish him every success.



The Hopedale Manufacturing Company, with works at Milford, Massachusetts, has recently issued a circular entitled "Better Looms." A newly designed loom is explained and the different parts with most modern improvements are given. The loom proper has been redesigned to give the very best kind of a weaving machine with automatic features, and is up-to-date in every respect. The battery contains several new features, perhaps the most important being the improved method of operation in bringing the bobbins into place for transfer. Simplicity and lightness combined with stiffness are the main features of the warp stop motion used on the loom. The machine has a newly designed thread breaking temple, a mis-threading device, filling feeler, and a late model shuttle.

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How Other Men Manage

Practical Discussions by Cotton's Readers on all varieties of Mill Subjects

Should Starch Be Weighed or Measured?

EDITOR COTTON:

Permit me on behalf of one concern which is interested in the manufacture and proper use of starch to thank you for the timeliness of your editorial entitled "A Difference of Opinion" which appeared in the June issue of COTTON. It does not matter much whose position is sustained, but it is of the utmost importance to the textile mills that they should use their starch to the best advantage and your direction of attention to the much discussed question should be welcomed by all concerned.

The weighing of starch is advocated because of the knowledge of starch on the part of the manufacturers and the experience of the practical mill men who have tried both measuring and weighing. The only argument advanced for the measurement of starch by volume is that the variation in weight due to the moisture changes of the material are greater than inaccuracies which occur when starch is measured. It is quite true that when starch is very dry it will absorb a considerable amount of moisture from the atmosphere, on the other hand, if the moisture content is high the tendency is to give up moisture. There is, however, a point of approximate equilibrium where the tendency to remain constant under ordinary atmospheric conditions is fairly well fixed and it is in this state that corn starch is delivered to the customer.

It is hardly necessary to go into the details, since anyone who is familiar with the condition in which ordinary commercial corn starch is delivered, that is, a mixture of powder, small broken crystals and large crystals, will readily understand that a pail or other container will not always carry the same amount of starch when filled to the brim or any given mark. Apart from the natural interest which every starch manufacturer should have in desiring the best results, the decision must rest with the consumer. The test can be very easily made. Let those who are interested expose bags of starch to varying atmospheric conditions, weigh the same at stated intervals and record the weights. These records will show the extreme variations likely to occur in any location in the plant and indicate whether measuring or weighing is most dependable.

W. R. CATHCART (NEW YORK).
CORN PRODUCTS REFINING CO.

The Gerrard Wire Tying Machines Company, Incorporated, with home office at 217 West Superior Street, Chicago, Illinois, has recently located the headquarters for their southern division in Atlanta. This southern division headquarters is in charge of Henry E. Duquesne, as manager. They are also marketing flat band strapping for baling and boxing purposes in all standard widths and thicknesses, annealed or unannealed, painted or galvanized.

Opinions on Kinks.

EDITOR COTTON:

In the June issue I noticed an article signed "Justice (Massachusetts)" in which he says that a friend of his is having trouble with kinks in his cloth. He doesn't say, but I suppose it is the filling that is kinking.

It seems to the writer that in the first place they need a little cooperation; that is, the carder, spinner and weaver need to get together and locate this trouble. The carder, and also the spinner, may have done all that is possible to stop this trouble and by now I hope has succeeded.

The carder may think that he is delivering a first-class roving to the spinner and the spinner may think the same thing about his yarn, but the proof of the pudding is the eating thereof, so both carder and spinner ought to take a look around in the weave room and if the yarn is not right, then get busy everybody.

In the first place if there was not too much twist in the yarn the filling would not kink, that is a cinch. I know what the carder and spinner will say, if this letter gets by the goat and the waste basket, that is, that they are sure that the man who wrote this is a weaver, but it is not so, as the writer has had fifteen years as carder, spinner, and superintendent on all kinds of yarn.

I have been through with the same trouble time and again and, in my position, the first place to start to locate the trouble is the opening room. See that the cotton is being torn up and mixed thoroughly and that the waste is not mixed in wads but is distributed evenly throughout every mixing. Weigh the laps on the intermediates and also on the finishers. Don't leave this for someone else to do, but have the overseer drop in the picker room several times a day and put a few laps on the scales and weigh them and don't allow them to vary over ¼-pound either way. Don't allow the card hands to double the laps when lapping the cards. See that all draft gears are the same, watch the drawing frames and if using metallic rolls they ought to be cleaned once a week, and have the section hand to go over them and see that all rolls are properly weighted. and that no laps are allowed to collect around the rolls as the ends will run if one of the back rolls is unweighted. See that the rolls on the drawing are kept well oiled. Watch out for doubling on the fly frames. Have each hand mark their roving, also have the spinners watch for doubling even if you have to give them one or two cents apiece for every one that they find, and be sure to see that all rolls are kept well oiled with a good nonfluid oil. There is more kinky yarn made from dry rolls than any other one thing that I know of.

If the band drive is used on the spinning, go over them and cut off all slack ones and then take out enough twist so you know that you will not be bothered with kinks. If the spinning runs bad, cut the speed on the frames, for we have speeded the front roll up by taking out twist. Say

that we have taken out ten per cent of twist, then cut the speed the same amount. Also see that the roving traverses are making their full stroke, if they don't the rolls will be channelled out and won't get a good bite on the roving. Take one that is channelled and lay it on some smooth surface, hold it up between you and the light and you can see and understand what I am driving at.

This is not all the things that will cause kinky filling, but in looking these up, one will be apt to locate the rest if there are more. After doing this, weigh the roving and yarn twice a day. Take thirty-two bobbins of roving and have the carder get a weighing from each one separately, then let the spinner take these same bobbins and put them on the spinning and get weighings from them. Then note the variation, for if running from 23s to 26s it is impossible to regulate the twist.

One will naturally have more trouble with kinks on looms that are weaving narrow cloth than one that is on wide unless it is a loom built for especially narrow goods. For this reason run a little less twist in the filling.

M. M. T. (Ala.)

EDITOR COTTON:

In answer to the letter from "Justice" in June COTTON, I will offer a few suggestions that may be some help to him.

If he had stated the number turns of twist he is putting in his filling, also what grade of cotton he is using, I might give him more definite information.

The kinks began to appear about three weeks ago. The carder may be running longer cotton for the filling than he was running, thus causing the yarn to take the twist better. If this be the case it will probably show up in the breaking strength of the yarn. If the filling is running unusually good and breaking very good it is evident the spinner can take out more twist.

Some of his frames may be binding or a bobbin with too short a taper; this is liable to cause kinks. The room may be too dry and need more humidification.

It is the practice in some mills to let the filling stand in trucks and use from the trucks as needed. In this way the filling carrier very often gets hold of a box of filling just doffed from the frame, which will cause kinks.

I have a large brick chute from the weave room on the first floor to the spinning room on the fourth floor. The filling is dumped in this chute and taken out at the bottom as needed. The chute is always kept full, this insures the weave room using filling that is a few days old. I also have a supply of filling in a ware room, and should the filling from the chute kink, I have some brought in from the ware room and send the new filling out to the ware room for storage and ageing. I hope these suggestions may be some help to "Justice." A. B. C. (N. J.)

Keeping Work Right After Carding.

EDITOR COTTON:

If the cotton is either combed or double carded the sliver lap machine is used to get the card slivers back into a lap suitable either for the finisher card, the ribbon lap machine, or the comber; and while the draft on a sliver lap machine is too short to do any more than lay the slivers parallel, the drawing rolls should be kept clean, in fact the whole machine should be kept polished bright for looks if for no other reason. Keeping the machines clean keeps the stop motions working at the proper time, and the rollers from lapping.

The lap head is some different from the lap head of a picker, having a wooden roller or spool in place of a lap pin, and in the more modern heads the weight of the roller over the lap is so great that if the friction brake is ever released without the machine tender having his hand on the friction wheel, after doffing, the presser roller goes down with so much force it breaks either the rack, the rack gear, or the gear on the friction shaft. The racks should be provided with a brake that would have no effect while going up but offer resistance coming down.

The object of the ribbon lap machine is to double several laps from the sliver lap machine into one, drawing the cotton out so the fibers will be more or less parallel and making a more even lap than is possible to make on the sliver lap machine. The draft on this machine is longer than the draft on the sliver lap machine, being about the same as the draft on the drawing frames. The drawing rolls should be scoured every two to three weeks, the stop motions kept working perfectly to make even work, and the whole machine kept polished and clean.

It is very important to keep a comber level, for if this machine is set while level and then the floor settles enough to throw it out of level, some of the settings will be off, causing cloudy work.

The settings of a comber depend on the length of fibers in the cotton being run, the amount of waste desired, the weight of the lap fed, the kind of cotton fed, and the quality of work desired.

Before attempting to set a comber, or to change any of the settings, it should be gone over with a level, to see that it is level, then the cylinder shafts and delivery rolls must be the same distance apart at each end, as must the feed rolls and delivery rolls. The nipper knife should have the same pressure all the way across the cushion plate, or else where the pressure is the least the fibers will be pulled out by the needles on the half-lap and go in the waste. The nose or front edge of the cushion plate should have a perfectly even surface its entire length. The nippers should be kept the same distance from the delivery roll throughout the length of the frame, as this will allow of a more even setting of the cushion plate to the delivery roll. The settings between the needles of the half-lap and the nippers should be examined frequently to see that the settings are the same at both ends of each head. Where a top comb is used these settings should be examined at the same time.

The revolving brush should be kept close enough to keep the needles on the half-lap clean, and the brush itself should be cleaned periodically. The amount of waste can be controlled by timing and setting. If more waste is desired, feed and nip late, and set the top comb and nippers closer; if less waste is desired the opposite settings will give the desired results.

The detaching roll should be watched closely to see that it is perfectly true and turning free as a bad detaching roll will make bad work.

The needles on the half-laps and top combs should be examined frequently and kept in perfect order to get the best results.

In a comber, light quick work has the advantage over heavy slow work.

The detaching roll, if of leather, should be varnished every week or ten days, the delivery and feed rolls scoured every two weeks, and the pans, table and all bright finished parts should be polished once every week.

Where a comber is not used, a drawing frame is practically the first machine that parallelizes the fibers, and there are many theories in regard to settings of the rolls, and the number of processes that give the best results, and yet drawing is one of the simplest machines in a cotton mill. Its main objects are to make the work weigh even and lay the fibers parallel. So the more processes properly set the evener the work, and until all the fibers are parallel the more processes the better for this purpose, but since every process the cotton goes through weakens the fibers that much, and not only weakens them but deprives them of the means for holding onto each other by straightening out, more or less, the corkscrew like effect of each fiber, it depends on the ultimate results desired as to the number of processes that give the best results, for it would seem there are several places in a cotton mill where a good result is obtained at the sacrifice of some other good feature, which makes it a local question that has to be governed by conditions.

The setting of the rolls depends on the length of fibers being run, as, taking the speed of the rolls, the increase of speed of each succeeding pair of rolls over the preceding pair, should be set so that as the faster revolving pair is taking hold of a fiber, the slower revolving or back rolls are just turning it loose. This fiber being imbeded in other fibers not yet turned loose by the back rolls, gives enough resistance through the corkscrew like effect of the fibers to straighten the fiber out, thus laying it parallel with other fibers already straightened.

A good way to get at the proper setting of the drawing rolls, is to pull the staple, after mixing from a uniform mixing of cotton being run, take the average length of the staple, and to that length add 1-16 inch for the rolls standing still, and add an additional ⅛ inch for each 100 r. p. m. of the front rolls, and add ⅛ inch for the larger amount of cotton between the second and third roll, and add 2/8 inch for the excess amount of cotton between the third and back rolls. For instance, if the average length of staple was one inch and the front roll speed was 100 r. p. m., the setting between centers of the front and second rolls would be 1 3/16 inch, between the second and third rolls 1 5/16 inch and between the third and back rolls 1 7/16 inch. If the front roll speed was 300 r. p. m., the setting between the front and second rolls would be 1 7/16 inch between the second and third, 1 9/16 inch, and between the third and back roll, 1 11/16 inch.

The foregoing rule is based on a 60-grain sliver, and if the sliver was lighter, the setting would be slightly closer; while if a heavier sliver was used, they would be slightly wider. While this rule will not always give the best results, it is a starting point and if the spread of the rolls is correct, the sliver taken from between the front rolls and calender rolls, if held up to the light, will show an even distribution of fibers, while if too close there will be bunches at intervals caused by the rolls catching a bunch of fibers before they were entirely loose from the preceding rolls and breaking several at one place; if the rolls are too far apart there will be thin places; all through the web, not thick and thin, but just thin places, caused by the faster revolving rolls pulling the fibers they have hold of almost away from the following fibers, being turned loose or fed out from the slower revolving rolls.

The collars or bosses on metallic rolls should be examined occasionally and if worn enough to make the ends run tight a smaller gear should be put on the calender roll change. If some of the ends run tight and some loose, the collars should be turned down to the same size. Sometimes different tension of the ends on the same frame is caused from a heavy card sliver coming in at the back, or the weight not hanging clear, or the holes in the trumpets being different sizes, or the cuffs being dry and needing oil. When the collars wear until the tooth of the flute on the top roll goes into the mesh of the flute on the bottom roll deep enough to touch, thus cutting the fibers, the rolls should be replaced with new ones.

If using leather covered top rolls the varnishing should be looked after carefully.

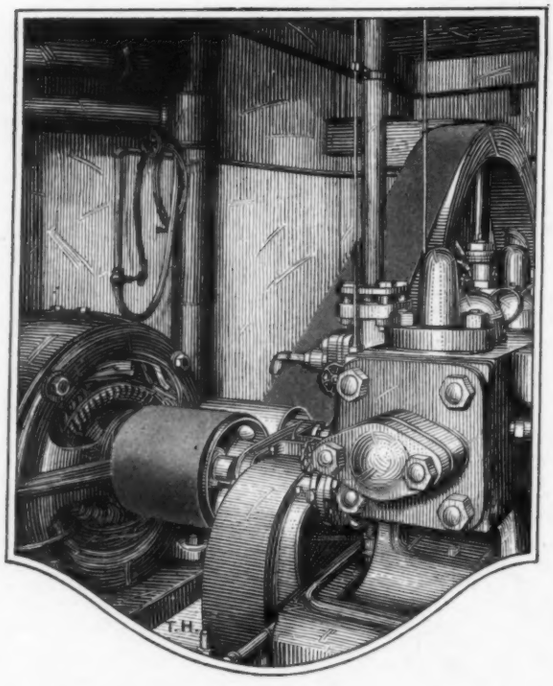
The entire drawing frame should be gone over every two weeks and thoroughly cleaned, and the fluted rolls scoured. The cans should not be allowed to run so full that the sliver is stretched from the pressure against the tube gear. The present mechanical stop motion for the full can is a poor arrangement for finished drawing, for on damp days there is a greater length of sliver in the cans than on dry days, thus cauisng trouble in creeling at the slubbers. The full can stop motion should be a measuring arrangements like a hank clock, and after so many yards were in the can have a block raise in front of the rocker shaft, thus keeping the same length of sliver in every can of finished drawing.

The difference between slubbers and other fly frames is that the cotton going in the drafting rolls of the slubber has no twist in it, there is no doubling and the draft is shorter here than at any of the following processes. The setting of the slubber drafting rolls is as important as the drawing frame rolls, and the staple should be measured after it has been through the finished drawing for it is longer here than in the mixing as the rolls in the drawing frames pull the fibers out more than it is possible to do by hand and a lot of short fibers have been removed in the preceding process. The front rolls on a slubber should be set for one inch cotton from 1 3/16 inch to 1 7/16 inch from center to center, while the middle and back roll from 1 7/16 to 1¾ inch owing to the weight of the work being run, the heavier the work the wider the setting and vice versa. A piece of roving taken from between the front rolls and top of the flyer and held up to the light like the web from a drawing frame, will show whether the rolls have a correct setting.

The object of the roving frames is to attenuate the sliver from the drawing frames to a suitable size to be spun with proper draft, and to cause the work to weigh more evenly by doubling at each process except the slubbers.

The draft should be divided between the different processes so that each succeeding process would have some longer draft than the preceding process, after the work

Do you know that the centrifugal force in belts at high speed reduces their driving power until at about 9600 F. P. M. a belt is incapable of transmitting power? All such factors are taken into account by our Engineering Department when they design standardized belt drives. Consult them about your problem.



This is a 12-inch Spartan Double Belt, operating a 50 horse-power Gas Compressor. Its cost to date is 1-2c per horse-power per week. When this belt had been in use 18 months, the engineer wrote us that it had given double the length of service of belts previously used. This has now been in use over four years and is still going strong.

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leaves the drawing frames, because in the first process the amount of cotton or diameter of sliver or roving is larger than at any other time, and continually gets less all the time.

If it was necessary to make a 22.5s yarn out of a 60-grain drawing sliver, through the slubber, intermediate, fine frames and single creel spinning there would be a total draft of about 21.5 after allowing for twist contraction, and it would be balanced to give the slubber a draft of 3.5, the intermediate a draft of 5, the fine frame a draft of 6, and the spinning a draft of 7, which would figure $60 \div 3.5 \times 32/31 \times 12 = 212.35$ grains in 12 yards of slubber roving; $212.35 \times 2 \div 5 \times 32/31 = 87.67$ grains in 12 yards of intermediate roving; $87.67 \times 2 \div 6 \times 32/31 = 30.16$ grains in 12 yards of fine frame roving; $30.16 \div 7 \times 32/31 = 4.4475$ grains in 12 yards of spinning; $4.4475 \times 70 = 311.325$ grains in one hank of spinning; $7000 \div 311.325 = 22.48$s yarn.

There is a great tendency to run too long a draft because usually the card sliver has to be made so heavy to get the required amount of production, most mills not having but about one-half enough cards to do the work they are trying to do when its just as important to put in enough cards to properly do the work as it is to put in enough spinning frames.

Speeds of fly frames are often too high, causing the spindles and bobbins to jump, and bringing excessive wear on all running parts, which soon gets the frame all "shot to pieces." Then the only way to fix it is to make a new frame out of it. It is often found that production can be increased by cutting the speed of the spindles 5 to 30 per cent.

While there has been adopted what is known as standard twist, which is the result of the square root of the hank roving multiplied by 1.2 or $\sqrt{\text{H R}} \times 1.2 =$ standard twist per inch, this will not always give the best results owing to there being a great difference in cotton, for the more uneven the length of the fibers in the cotton, the more twist it takes to hold the shorter fibers from flying out at the different processes, while the evener the length of fibers the less twist it takes to give the best results. The weaker the fibers the more the twist, the more hard ends, and consequent ruined rolls.

If there could be one thing more important than another about the roving process, or through the whole mill, it is tension. There the work can be badly damaged without being noticed. It stretches and weakens without breaking and unless such work is doubled again several times in the succeeding processes any of it reaching the cloth makes weak places in the cloth.

Whenever a roving frame fails to run through a doff without having to take up or let off on the tension, there is something wrong with the frame, either the tension gear is wrong, the lay is wrong, or the starting place of the cone belt is wrong, or the cone belt is slipping from some cause. The roving should be laid as close as possible without riding and if the lay is right, and the cone belt is not slipping from any cause and the tension gets wrong the same way all the time, that is, it continues to run slack, or continues to get too tight, and it can't be remedied by changing the tension change gear, then the starting place of the cone belt is not right and should be changed. Anything that causes the cone belt to slip—the belt being too slack or any part of the frame, driven by the bottom cone, binding or sticking, will cause the ends to continually get too slack, because the front rolls deliver a constant length of work all the time regardless of whether that length is being wound on the bobbins, and if the bobbins don't take it up as fast as it is delivered, the operative is compelled to take up on the ends until it is fixed and the only way to fix it is to stop the cone belt from slipping by finding what is causing it to slip and fixing it.

To build a good bobbin lay the roving as close as it will go without riding. See that all the pressers work free and are wrapped the same number of times; that the top of all spindles are in line; that the taper is not so short that some of the layers will run over at the ends of the bobbin; that the builder is sharp and not rounding; that all slow moving gears are set so there is no back lash when the carriage changes; that the spindles and bobbin gear are set right; that the speed is not high enough to cause the bobbins to jump when properly set; that the flyers are all straight and balanced; that the bobbins are all the same diameter; that the bobbin is not full enough to chafe against the presser arm; that the carriage is level with the frame; that the pins in the top of the flyers are not worn; —and have the tension right. Then the result will be a properly built bobbin.

Every other bobbin, or every other line of bobbins should be creeled at the same time, so if there is any variation in the weight of the roving from an empty to a full bobbin, neither all the light, nor all the heavy will go in together. The ends should be pieced at the end, tip to tip, where particular work is desired. Skewers should be watched and not allow the bottom ends to become blunted.

When an end is put up it should have just enough twist to hold it together, and about six inches pinched off at the rolls.

Roll setting has to be governed by local conditions and the best results can be obtained at each mill by testing the breaking strength from different settings. It is important to see that the traverse is working properly from side to side of the leather cot, that the weight hangs clear, and that the leather rolls are kept in good shape and recovered when needed.

The top of the spindles and flyers should be picked each doff, the clearers picked between each doff, the bottom of spindles picked every day, while the frames should be wiped off often enough to keep them clean.

Fast moving parts should be oiled two times a day; slow moving parts one time each day; while two times each week is often enough for steel rolls and saddles, and once every two weeks for shell rolls and steps. The bobbin gear should be lifted up and oiled underneath three times a week. The spindles inside the bolsters should not be oiled at all on old frames as this is a loose upright bearing, and if the spindle and bolster is plumb it doesn't need any oil. The oil causes the inside of the bolster to gum and catch cotton off the spindles, causing chokes, hot spindles, cotton to stick to the bobbin, and sometimes fires.

Roving frames should be overhauled once a year, pulling everything apart but the frame work, cleaning thor-

A back that's never turned

A dark night, factory closed, guard on his rounds—two evil intentioned miscreants awaiting their chance—watchman turns the corner, and over the board fence they go, unseen, unheard.

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An Anchor Post Chain Link Woven Steel Fence is "the back that's never turned"—it foils the most desperate attempts of any evil doers—it is unclimbable, they can't get over, they can't get under. It is impregnable at every point even in the darkest and most remote corners, a constant protection—a cordon that shuts out all outside harm.

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Anchor Post Fences

oughly, and building it over, repairing or replacing all worn parts. The frames should be lined and leveled at this time, and the steel rolls scoured. The carriage should be cleaned every six months. A. L. A. (Ga.)

Some More On Hard Ends.

EDITOR COTTON:

Like "A. B. C. (New Jersey)" "Overseer (Ga)" wants more information regarding the self weighting of rolls.

I wish these two gentlemen would read the letter printed in the January issue of COTTON, which states, "We are running sample stock, the length of the staple varies from 1⅛ inch to 1¼ inch. We are having trouble with hard ends. This is the fifth week of a struggle with such conditions. As I know you to be a contributor to the textile press, could you suggest a remedy?" You will notice that nothing is said about twist. Since the above appeared in the January issue of COTTON, I received a check and in the same envelope a letter that stated in part "Your suggestion has eliminated our trouble and I will always feel I owe you much."

I received another from a southern gentleman and he too speaks well of my work. I am not writing in this department for compensation only, although a check occasionally comes in handy. COTTON is my favorite paper, and one devotes most time to what he likes.

Now, I will answer "Overseer (Ga)'s" question No. 1. He never heard of hard ends an drawing frames, of course, not. Very seldom on slubbers and why? Because the number of fibers under the action of the top leather roll are so great, the roll is unable to hold a firm grip on the fibers. Consequently, the longer fibers escape without being broken. It all depends on the number of fibers in the cross section of the strand. By taking the weight off the middle roll we reduce the grip which allows the long fibers to be drawn under the action of the roll. I did not mention the twist as I knew the readers of this department knew enough of the subject. Of course, if a man never saw a cotton mill, and saw hard ends coming through and did not take twist out of the preceeding process, you could not blame him, could you? But show me the carder or spinner that would not think of it. This is all trite.

No. 2 I agree with "Overseer (Ga)" and everything he states in the third paragraph. "Overseer (Ga)" should read agent's letter in answer to what he states in the fourth paragraph. "The length of the staple varies" writes this agent. Nothing is said about lots. Again, I wish to state here that we all have read enough in this department to know better than to mix a 1⅛ inch lot of cotton with 1¼ inch lot.

"Overseer (Ga.)" discovered a good one in the last paragraph when he asks, "If it is a good thing to leave the weights off the middle roll for uneven staple, why it wouldn't be a good idea to leave them off for even staple?" The answer is simple. It is impossible to have the same number of fibers in the cross-section of any yarn made from sample cotton, for the reason that the long fibers are under action of the rolls more than the short fibers. If the grip on the second roll is stronger than the staple, the staple is either broken or the front roll is checked and a hard end is sure to result.

For even staple, the aim is to have the same number of fibers in every inch in the cross-section of the strand, and this can be done only by setting the rolls apart 1 1/16 on an inch or more than the average length of the staple. The rolls must be properly weighted so that the second roll will hold a firm grip on the fibres and present them gradually to the front instead of in clusters. Although it is impossible to make even yarn with sample cotton, it must not be forgotten, that sample stock is cheaper than market stock and for certain kinds of finished goods, sample stock is as good as any stock. However, a man must use his head to run it. Wash (N. H.)

Some New Constants for Fifty-Five Hours.

(*Continued from page* 653.)

$\frac{18}{6}$ = 3 amperes times 2 lamps = 6 ampere hours.

If the car has a 60-ampere hour battery then $\frac{60}{6} = 10$ hours, which is what the battery would run these two lights.

Do you pay taxes on an automobile? Here is the way to figure the horsepower. Square the diameter of one cylinder, multiply by the number of cylinders and divide by 2½.

Example: A cylinder is 3½ inches.

$$\frac{3.5 \times 3.5 \times 6}{2.5} = 29.4 \text{ h. p.}$$

Approximate h. p. of cotton mill machinery at normal speed.

2	beater picker	9 h. p.
1	beater picker	5 h. p.
1¼	cards	1 h. p.
5 to 6	deliveries drawing	1 h. p.
45	slubber spindles	1 h. p.
50 to 60	intermediate spindles	1 h. p.
60 to 70	speeder spindles	1 h. p.
80	spindles on 40s spinning.....	1 h. p.
1	slasher	1½ h. p.
3	folders	1 h. p.

To find how high a water tank is or to determine how high a water tank must be to give a certain water pressure. Suppose the water gauge shows 80 pounds pressure, and you want to know how high the tank is, multiply this by 2.305 feet to the pound and you have 184.4 feet high.

To find approximate cloth costs for spinning rolls which can be cut from a yard of cloth. The cot is 2¾ inches × 1¼ inch. Cloth is 56 inches wide. (Allow one inch for waste). Example:

$$\frac{55'' \times 36'' \text{ one yard}}{2.75 \times 1.25} = 576 \text{ cots.}$$

Speeders, intermediates and slubbers may be figured by same method.

A note book is a handy companion—silent, but ready to assist at a moment's notice. The note book habit should be acquired. It pays compound interest on the time and effort expended. Better start today.

Weathering the Storm

BEFORE the day of the monster trans-oceanic liner, the small sailing vessel risked life and cargo every time she weighed anchor. The old-time mariner stood by the barometer and prayed to his particular Deity that the weather might be fair and the wind good. The staunchest craft and the most skilled mariners were powerless before the caprice of the weather.

Many modern Textile Mills, modern in every *other* respect, are as powerless as that small sailing craft, before the whimsey of the *weather*.

"Every Day a *Good* Day"

But not *all* American mills are subject to the humor of the weather. Nearly two hundred of them, the finest of the number, have installed Carrier Equipment for *manufacturing* their own Weather, inside their own plants.

Bulletin 103-C will tell you the story of Manufactured Weather, It's yours for the asking.

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Audible Electric Signals in Industrial Plants.†

BY V. KARAPETOFF.*

No industrial plant of any magnitude may be considered fully efficient unless means are provided for promptly locating any important employee, no matter where he may be within the plant. A private telephone system, however extensive, serves this purpose only as long as the needed man is at his desk, but as soon as he leaves his desk the problem of locating him becomes a hit or miss proposition. On the other hand, a superintendent, foreman, a millwright, a repair man, etc., is ordinarily useful only in so far as he can freely move about the shop without the fear that someone of importance may need him. Thus, within the last few years, under the tremendous impetus of the pressure for an enormous increase in the production of munitions of war, audible electric signals have been introduced into many industrial plants.

Such an electric signal is usually similar in construction to the familiar electric "horn" used on automobiles. It consists of a diaphragm with an anvil at its center. A toothed wheel driven by a small electric motor strikes the anvil many times a second and causes it to vibrate vigorously. These vibrations produce the well-known warning tone, which carries over a considerable distance. The device is provided with a projector or horn the shape of which depends on whether it is desired to scatter the sound, to intensify it in horizontal direction, or to deflect it downward. Such motor driven signals are now made much more powerful than automobile horns, and are wound for 110 or 220 volts, direct or alternating current, so that they can be connected to a lighting or power circuit, and do not require a separate low-voltage battery.

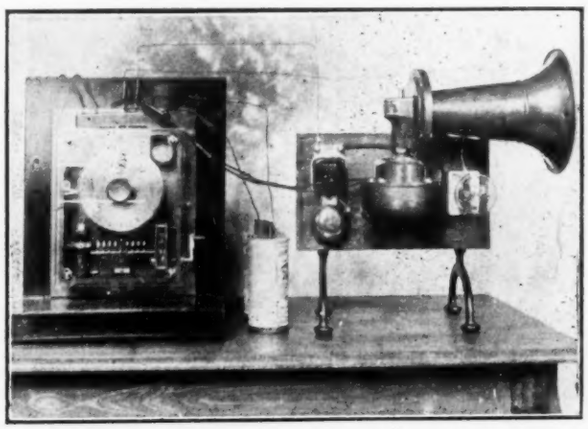
With such electric audible signals scattered throughout the plant, it becomes an easy matter to locate instantly any person to whom a code number has been assigned. For example, when the manager wishes to speak to one of the assistant superintendents, who may be anywhere in the plant, he simply tells the telephone operator to sound this particular man's call. As soon as this assistant superintendent hears his call, he comes to the nearest telephone, and reports, whereupon the operator connects him with the manager.

It would be rather inconvenient for the telephone operator to sound various calls by hand; therefore a special code-calling automatic instrument has been developed for this purpose. The operator merely sets the desired person's code number on a dial and pulls a lever, a contact-making mechanism is thereby set in motion, which closes the electric circuit and operates the code signals throughout the plant the required number of times (usually three times) and then stops automatically.

In noisy and in open places, or in large factory lofts, the electric horns mentioned above constitute the most suitable type of signal. In offices they may be replaced by less loud electric gongs, bells, buzzers, air whistles, or incandescent lamps. In some cases two separate circuits are run from the code calling mechanism, one circuit for ordinary calls, the other for fire-alarm gongs, or for some other special purpose. Sometimes two allied plants are operated side by side with a separate staff in each. Then the same code combinations can be assigned in both plants, but the horns in one or the other plants will sound according to which of the two circuits is closed.

A further application of loud electric horns in industrial plants is for extensions to telephone bells. The ordinary telephone ringer is not loud enough in many shops when the foreman is away from his desk. In this case, a relay is connected in parallel with or in place of the telephone ringer, and when it is actuated, it closes a secondary circuit which causes an electric horn to sound. This call should be a single blast to distinguish it from code calls.

Audible electric signal systems are also used in various plants as warning signals on cranes and hoists, also to call a shifting locomotive, to indicate the beginning or the end of a certain operation, and for other local purposes. Like



A CODE-CALLING INSTRUMENT (KLAXOCATOR), AND THE SIGNALS WHICH IT ACTUATES, VIZ., AN ELECTRIC HORN, A BELL AND AN ELECTRIC LAMP.

in the case of any convenience, once such an electric system has been installed, the superintendent, the foreman, and even the operatives themselves will find new uses for it.

Audible signals are specially adaptable in a textile mill on account of the great noise of the hundreds of machines. Since telephones are practically impossible in such noisy shops, and since the code system is here needed only for a comparatively small number of superintendents and engineers, each person should be given two or three code numbers, in order that he may know where to go, what to do, and how urgently he is needed. In view of the large number of women and minors employed in the textile industry, fire alarms should be particularly efficient, and the code calling instrument can be readily provided with a second circuit for sounding fire-alarm gongs, instead of horns. This provision may be in addition to the compulsory independent fire-alarm system, to insure more safety or to give supplementary information as to the location and extent of the fire. The Clark Thread Mills in Newark, N. J., are provided with electric horns for fire-alarms purposes, and the installation has operated satisfactorily for a number of years.

Automatic machinery, modern methods and experienced men mean the difference between a dividend paying mill or one that is an unprofitable investment. A careful examination of a property with the foregoing thought in mind may lead to radical changes. It costs nothing to look.

*Professor of Electrical Engineering, Cornell University, Ithaca, N. Y.

†An extract from a paper presented before the Rochester, N. Y., Section of the American Institute of Electrical Engineers, on April 25, 1919, and before the Erie, Pa., Section on May 13, 1919.

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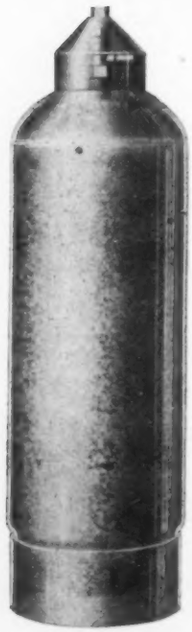

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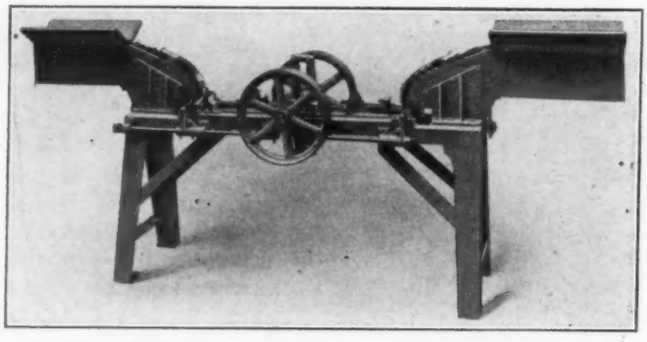

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Fighting German Commercial Conditions in South American Countries

BY "EXPORTER."

It was one of the maxims of modern "German after-the-war-policies" that South America would have to supply to Germany the raw materials which that country may be unable to secure in other markets. It was argued that, there is a fair possibility of regaining in South America at least part of the trade that has been lost to Germany elsewhere. Also it is expected that the South American countries which can be induced to buy German merchandise will be willing to pay for their purchases with raw materials of their own production.

This view has been frequently expressed by German writers on the subject, and there is no doubt that it contains a good deal of truth. This is a war which is not only fought by the armies. It has become also a war of commerce, principally in consequence of the use Germany has made of her commercial outposts in other countries for political purposes. If the German governing class can be brought to its senses, this will have to be done by pressure put on the German merchants and manufacturers, so that they will use what power is left to them, to counteract the influences exerted by the old Junker class on German international policies. To make impossible for the German industrial Junker the use of South America as a jumping off ground for a renewal of the struggle, therefore, is essential for the success of the allied action against the Germany of today.

The American cotton industry can do its share in this work by making South American trade independent of German supplies. In pre-war times Germany has supplied great quantities of cotton goods to South American countries. Shortly before the war Argentine bought cotton piece goods at the rate of $2,000,000 from Germany and cotton knit goods at the same value. Chile bought cotton piece goods valued at $6,000,000 and knit goods at a value of $500,000. The German trade with Paraguay in cotton goods amounted to approximately $200,000, while that with Uruguay reached $500,000. Brazil was a considerable consumer of German cotton goods, buying piece goods at a value of more than $1,500,000 and cotton socks and stockings amounting to as much as $500,000 yearly. Peru, another stronghold of the German cotton goods trade in South America, consumed piece goods at a value of nearly $250,000 and spent approximately as much as that on German knit goods. Germany also had a good customer in Columbia where it sold piece goods at a value of $300,000 and knit goods valued at $125,000. This does not include the considerable sales made by German manufacturers of cotton furnishing goods and similar cotton manufactures which also found much appreciation in the South American market.

It appears from the growing connection between the South American buyers and the German manufacturers that the consumers were fairly satisfied with the German goods. No doubt, excellent salesmanship representation by resident agents and good credit terms have done their duty, but this is no sufficient explanation for the fact that Germany's influence in the South American cotton goods market was growing. This would not have been the case unless Germany supplied the South American market with articles wanted by that market. German writers, therefore, may argue with some reason that, as long as the German goods can not be replaced by other countries, the South American markets will return to Germany for their supplies, at least for those goods which Germany supplied in superior quality or at cheaper prices than her competitors. The connection once re-established, Germany will not find it difficult to start again her methods of peaceful penetration, supported by governmental subsidies, which is resented by the other countries of the world.

The only way left to the remaining nations of the world to prevent Germany following such a course, is to make it unnecessary for the South American countries to go to Germany for the goods formerly supplied by that country. If the same class of goods is supplied by several other countries, it is then left to the choice of the South American customer where he wants to buy, and he is not compelled to go to Germany. Germany, then, can not make conditions as to the supply of certain raw materials in exchange for German goods, which removes the principal basis of the German argument.

The American cotton industry has started already to remove part of this German menace by extending its commercial interests in South America and offering to the South American countries cotton goods that may be used in place of German goods. So far the results of this policy have justified the enterprise, but the question is whether the assistance rendered in this way by the American cotton manufacturers to the South American trade has been far-reaching enough. South American commerce in cotton goods is a fairly complicated proposition. In normal times the market it well supplied with the best European goods, and the Germans especially, have not been triflers as to their methods, prices and credits. It is generally known that two prices existed in the German factories, one for export and one for home trade. The principal involved was that the factories could well stand to sell cheaper, and even below actual manufacturing cost, abroad than in Germany, as they could reimburse themselves by higher prices at home. The American cotton industry, to combat this influence, therefore, will have to come forward with special lines which can be offered cheaply and are attractive to the South American taste. As we already have a flourishing market for these goods in Cuba and the Phillipines, it should not be difficult to supply a similar article to Argentina, Brazil, Peru and Chile. With our improved methods of printing cotton goods and also the printing color question solved, there are no technical obstacles in the way of following a clear-cut policy of replacing the German made goods by those made in the U. S. A.

It seems that our industry has already entered the trading field of the German cotton manufacturers in South America. American cotton knit goods exports to most of

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This is the age of co-operation. Many of the larger Carolina Textile Mills have co-operated through the MILLERS INDEMNITY UNDERWRITERS and secured indemnity insurance at a saving of TWENTY-SEVEN PERCENT.

A Division Office in this organization has been opened in Atlanta to better serve the Georgia and Alabama Mills. Members of the Georgia Asociation of Cotton Manufacturers will recall the discussion at the May Convention at Atlantic City. What has been accomplished during the past two years for the Carolina Mills can be accomplished this year and in years to come for the Georgia and Alabama Mills.

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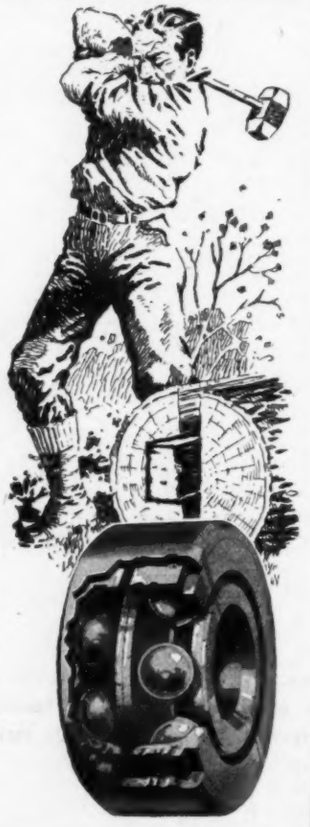


New Departure Ball Bearings

the South American markets have grown comfortably, and Argentina, the stronghold of the German cotton goods trade in South America, is practically now in the hands of American cotton goods manufacturers.

A definite move is now taken by the Bureau of Foreign and Domestic Commerce in sending specialists to South America with a view to finding new market possibilities for American commerce. An excellent report on the textile markets of Bolivia, Ecuador, and Peru, has been published only recently, the reading of which must be recommended to everybody interested in the question. With these reports at hand there can be little difficulty for the manufacturer of cotton goods willing to enter the fight, to inform himself about what is wanted for the purpose. He will find that the solution lies not only with the supply of the goods but also in the handling of the market. It is in this respect where we will have to exert ourselves mostly and where the conquering of German influence will be most difficult.

It is the subtle influence exerted by German traders which has left its mark on South American trade. German agents have visited the South American buyer and have made friendship with him. They have used this personal relation later for the purpose of fighting the competition of other manufacturers, often of their own country. Sample lines sent by other factories have been inspected by these agents, and the better designs have been imitated more cheaply, resulting in losses to the originators. American manufacturers are not requested to descend to the level of these methods. What they can do, however, is to imitate German goods found in the market. In this case goods should be selected which have found a wide sale and therefore hold a promise for future sales. They should study the personal wishes and indiosynerasies of their customers and satisfy them to the utmost. This has been the principal strength of the German manufacturers. The German cotton goods industry in this respect is placed better than the American industry. The German cotton industry still has a greater number of small factories which can be satisfied with small profits and which by the character of their commerce are able to take into consideration the special wishes even of small customers. This is technically impossible for the large firm. It has to sell its standardized products and the customer has to comply with the policy of the manufacturer. America especially as the mother country of quantity production, is following this principle, often to the disadvantage of its foreign commerce.

Germany will now probably lose the support of its small industry. Economists in Germany in fact are of the opinion that the small manufacturers will be wiped out as a result of the war mobilization, closing down of small factories, and similar causes. America, on the other hand, endeavors just now to make available the benefits of foreign trade to her medium and small manufacturers. The passing of the Webb bill in this respect will bring excellent results. The small cotton manufacturer in this country may be excellently suited for taking up the battle in South America. Where the large manufacturers of piece goods can not enter will be his best point of attack, and he is bound to succeed.

Even under present difficult conditions a good has been gained. The enormous progress made by the American cotton industry in Argentina has been mentioned already. During the last year unfortunately, there has been less activity in our cotton goods exports to South America. This is regretable, but it is to be hoped that an improvement will be noticed during the present year. The American cotton industry slowly accommodated itself to the situation created by the entrance of the United States in the war. The results during the reconstruction period will show in a renewed forward movement in the export values to South America. It must not be forgotten that every new customer gained in South America by an American cotton manufacturer means a customer lost to Germany. This is a campaign of attrition. No German propaganda, present or future, will reduce the effectiveness of this method of beating that particular current of political thought which we were fighting in Germany.

The Baker R. & L. Company, of Cleveland, Ohio, has recently issued several booklets pertaining to and explaining several types of their inter-plant trucks. Views of the elevating truck, the tractor, and the utility truck manufactured by them are shown, and explanations concerning the construction and operative ability of each is given. Each kind of truck is made in either two or four-wheel drive. This factor is important as the tractors are put to different kinds of uses, some requiring a large pulling power and others a small pulling power. The four-wheel steer method is also used on the trucks and tractors. This is of advantage when the trucks and tractors are operated in close quarters. The purpose of the elevating truck is to slide a part of the body under a load and pick it up and convey it away. The utility truck and tractors are constructed to transfer loads on trailer trucks, to any part of a building or yard that may be desired. These trucks are being adopted by and are in operation at many of the large manufacturing plants of the country. They were planned for the purpose of saving time and labor for the employer.

The Walker Electric & Plumbing Company, plumbing, heating and electrical contractors of Atlanta, Rome and Columbus, Ga., have recently moved the Atlanta offices into very much larger quarters. The reasons necessitating this change are in line with their original plans in regard to perfecting each of their departments, viz., electrical, plumbing, heating and sewerage, and naturally this has greatly enlarged their local force, or Atlanta working force, for while they were on Government work they had many hundreds of employees.

Also, in order to give their customers the best of everything at the most attractive prices, they found it necessary to have a very large warehouse to stock or store the many carloads of material received daily and as they were unable to find so large a warehouse space they secured their present location which includes a very nice private railroad track immediately adjacent to the warehouse, which is right in line with their attractive price idea.

Know the cost of the product of the mill and base selling prices on actual values. Guessing is a dangerous game these days.

The Situation in Needles.

(*Continued from page* 688.)

vent the importation of needles from any country, and I am opposed to the system of trade licenses. If needle manufacturers are given tariff protection there will be no need for licenses or restrictions of any kind."

The executive of a large underwear mill ascribes the large increase in importations of spring beard needles to a falling off in the production in this country when needle manufacturers devoted their energies mainly to making latch needles after communication with Germany was cut off. He points out that considerable of the fabric specified by the government during the war was made on spring beard needle machines. Since the war, he says, domestic manufacturers have been taking care of the mill's needs of latch and spring beard needles.

A manufacturer who concluded to try Japanese needles placed an order for a lot and the order was accepted, but a few days later the Japanese concern cabled its representatives here of an advance of 70 per cent. The agents were persuaded that they stood committed for delivery of the needles at the order price, but delivery never was made.

Manufacturers are not of one accord on the question of supplies. While some say there are not enough needles, the head of an important mill believes there are, and says: "There can be sufficient needles manufactured in the United States to supply the trade provided suitable tariff laws be enacted."

The greater consumption of spring beard needles is attributed by a manufacturer to an increased production of full fashioned merchandise, the expansion of the sweater coat industry and the introduction of several circular machines using the spring beard. The drop in importations of latch needles of course was due to the shutting out of the German product, and while the market was bare of latch, manufacturers in 1918 stocked up with spring beard, it was suggested as the explanation for the large increase in imports of the latter.

One of the better known knit goods operators takes a very pessimistic view of the needle situation. He says: "It is certain we will have great difficulty in getting along in the next two years without considerable quantities of both latch and spring beard needles from Japan. Our manufacturers should be given protection, but left in position to import such needles as cannot be made here. Up to the present Japan has produced needles of very inferior quality, and has not made a better needle than a year ago."

One of the nationally known manufacturers would have all the needles used in this country made in United States factories, and it is his suggestion that the government do whatever may be necessary for the encouragement and protection of domestic manufacturers of needles. He said:

"It is our experience that it is very difficult to obtain good needles of the finer gauges. We do not believe it advisable to make laws that would absolutely prohibit the importation of needles, but that domestic manufacturers should be protected with an adequate tariff and laws to prevent dumping. It might be necessary to arrange a license system applying to importations of needles and make it possible to absolutely prohibit the importation of any particular type of needle if our domestic manufacturers can prove they are prepared to supply the entire needs of this country on the needle type in question.

"We feel that a system of license privilege for importations of merchandise in a good many lines is desirable. We must arrange to keep labor in our country employed at good wages. If domestic manufacturers in any business prove they can supply the needs of our people, at prices that are reasonable on the basis of the market for raw material and labor, the government should arrange to protect manufacturers of such commodities and the labor employed in producing them. We all know that the British government frequently adopts this policy, and although it is hard for some of our manufacturers who desire to export a part of their product, it is certainly a fine system for the British manufacturer.

'I might suggest that the working out of the details of such a system be in the hands of a small commission composed of high-grade intelligent men, they to receive compensation sufficient to induce them to take up the work, giving up every other business interest, and devoting their entire time to this one service."

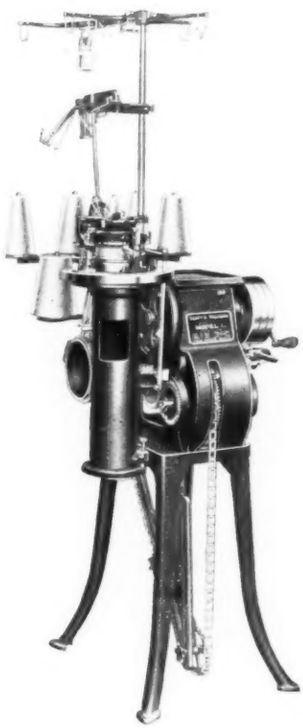
There is considerable idle machinery, due to lack of certain types of standard needles, one mill having 50 machines out of commission. In some mills there appears to be ample supplies, which leads some interests to observe that somewhere some one was shown favors.

The Newbert Color Company.

The Newbert Color Company of 88 Broad Street, Boston, have recently become the exclusive selling agents of the Taylor, White Extracting Company of Camden, New Jersey, manufacturers of high grade dyewood and tanning extracts. For a number of years the Newbert Color Company were distributors in New England of the products of the Stamford Extract Manufacturing Company, of Stamford, Connecticut, whose plant was destroyed by fire some few months ago. It will be remembered that the storehouse at Stamford was saved with its contents of several thousand barrels of manufactured goods. Now that these goods have been distributed to take care of a greater part of the company's business, the Stamford Extract Manufacturing Company have decided not to build but to retire from business.

Several of the men who were formerly associated with the Stamford Company have now joined the forces of the Newbert Color Company and the Taylor, White Extracting Company. William Felder, who was in charge of manufacturing at Stamford, will direct the work at Camden, where he will be in a position to deliver the same high standard of merchandise as before. The New York office of the Newbert Color Company, which is located in the Woolworth Building, will be in charge of Walter C. Valentine as manager. Mr. Valentine was formerly head salesman for the Stamford Company. Former Stamford agents in Chicago and Toronto will act in the same capacity for the Newbert Color Company. It is stated that the Newbert Color Company will establish an office in Philadelphia in the near future.

KNITTING SECTION



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FLATLOCK

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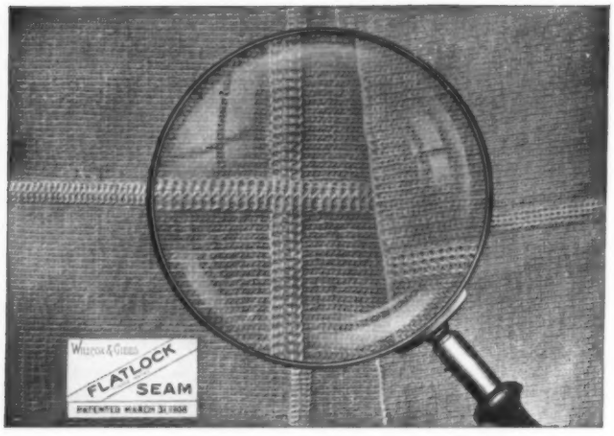
"The Seam That Sells the Garment"



An absolutely flat seam.
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A strong seam
An elastic seam
A thin seam
A friendly seam
An ornamental seam

(Illustration shows you its construction)

So many lines of knit underwear are being manufactured that the experienced buyer in picking the wheat from the chaff chooses a line that is made with the *Flatlock* Seam.

There must be a reason. The *Flatlock* Seam is the best Seam in the world because it has the points of superiority noted at the left.

The *Flatlock* Seam is a selling eature that manufacturer, wholesaler, jobber and retailer can use---one that the retail customer will appreciate if rightly emphasized.

We are proud of the *Flatlock* Seam and justly so, being sustained by the knowledge that nearly 300 manufacturers in the United States, Great Britain and Canada are using the *Flatlock* Seam in the manufacture of their trade-marked lines.

Unless you are already using *Flatlock* machines, you should investigate their merits.

WILLCOX & GIBBS SEWING MACHINE CO.

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The Knit Goods Market

Features of the knit goods market during July were striking advances in some lines of hosiery and keen interest in underwear for Spring 1920, and the stand taken by some of the commission merchants for safeguarding themselves against claims of merchants for non-deliveries.

Commission houses are in dread of a repetition of the war-time conduct of some of their mills in cancelling orders, for taking advantage of the rising market. An establishment near Broadway and Leonard street, New York, will not permit a salesman to accept an order, requiring all orders to be written on a sheet bearing the line "Memorandum," and at the bottom this clause: "This is only a memorandum and is not to be considered an order unless confirmed at the New York office."

Even this was not sufficient to keep the executive of the house out of trouble with a southern jobber. The New York house had wired a salesman of an advance of 10 cents a dozen in misses' 28 ounce ribs, but the wire, during the strike on the telegraph lines, did not reach the salesman, who accepted a memorandum from the jobber in question. On the day the memorandum was received the jobber's resident buyer called to have the "Order" confirmed and flew into a rage when informed that what he regarded an order was simply a memorandum and could not be accepted unless he agreed to pay 10 cents additional per dozen. The jobber went away vowing he would report the commission house to the Jobbers' Association. The commission man contends that had the price declined the jobber would not have taken the goods, under the circumstances, and that he could not have been compelled to do so.

Selling agents who have sold their mills up as far as the latter are willing to go, and commission houses in the same plight are looking for new accounts. A Broadway house is in the market for 1,000 cases of ladies' swiss rib vests for spring and would be satisfied with almost any delivery prior to January 31.

A Mohawk Valley underwear mill making a spring beard needle 2-thread garment opened a few days ago and has been besieged with buyers. A commission firm selling the lines of Pennsylvania and New York State mills is complaining of a falling off in sales, notwithstanding a steady demand. The complaint is based on the fact that manufacturers are not willing to sell further than they already have gone. They are looking for a rise in price, and are not disposed to give to their customers all the profit that is to come from early buying. Besides, it is reasoned, if for some unforeseen cause there should come a material drop in cotton they would not again be put in the position of being forced to accept cancellations to continue friendly relations with a "good customer."

There are a few mills well covered with yarns and materials at prices considerably under those of today which yet are restricting sales. Should the market decline they could go down with it without sustaining a loss. If it advances they will want the benefit for themselves, since they took the hazard in covering at prices that were high but low in contrast with those of the present.

Then there is the possibility that manufacturers may not be able to turn off the quantities they are banking on, for the supply of help, under requirements now, is becoming more uncertain day by day. In fact, some manufacturers are looking for mill sites in communities where the knitting industry never has been introduced, in the expectation that they may find labor that can be trained to mill needs.

Going further, cotton knit goods are selling at prices too low in proportion with the market for cotton. When a few years ago cotton was selling at 12 cents, 176 needle half hose were being bought by jobbers at and around 60 cents. With cotton at 35 cents, to say nothing of the increase in labor and overhead costs, these same socks are selling at only $1.25 to $1.35. A line of 10 pound shirts and drawers that sold at $3.50 on the basis of 12-cent cotton is going to jobbers at $9. Using yarn as a basis of calculation, these two products are relatively lower than if cotton be taken as a price basis.

There is still some fall underwear yet to be bought, but sales are not expected to be in any great volume until about the opening of the season for duplicate business, when, unless conditions show a change in favor of the buyer, prices should rule higher.

Considerable business in bal-briggans for spring has developed, with mills disposed to defer what usually is termed the opening until the last moment. A price of $4.50 for men's shirts and drawers and $7.50 for unions is heard as a starter. This is quite a lift since the cut made some months ago by an eastern mill, with the effect that for a time the market was demoralized, all of the advantage of which demoralization went to distributors. A meeting of the bal-briggan group of the Knit Goods Manufacturers of America was held in Utica, N. Y., July 17, at which the selling campaign for spring took shape, with the result that almost immediately buyers showed even keener interest than during the busiest days in early July.

Notwithstanding the Utica pow-wow, there will be no opening in the trade acceptance of the term. Some mills have been selling for a month, although professing to not have opened their lines. Others came out in the last week or two in a timid sort of fashion, more for the purpose of feeling out the market.

Sweater coats are perhaps the most puzzling of the several divisions of knit goods. While women's sweaters continue active, buyers have yet to manifest real interest in men's garments. There seems to be a feeling among distributors that if labor troubles continue, with the possibility of men being out of employment by reason of strikes and tie-ups, sweaters of the heavy type may not be in extraordinary demand. Then, too, it is held, there is some carry-over stock because of the mild winter of 1918-19, and there are dealers who fear that another such winter would play havoc with stocks of sweaters bought now. Yet commission men are to be found who are looking for a bumper business around October in men's sweaters, and one such is eager to connect with mills making standard lines.

Bathing suit manufacturers have had a profitable season, and a duplicate of this year's business seems assured. At least one of the large mills, a Brooklyn establishment, is sold up to January, some of its customers to take in the goods as fast as finished.

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HOSIERY MACHINES

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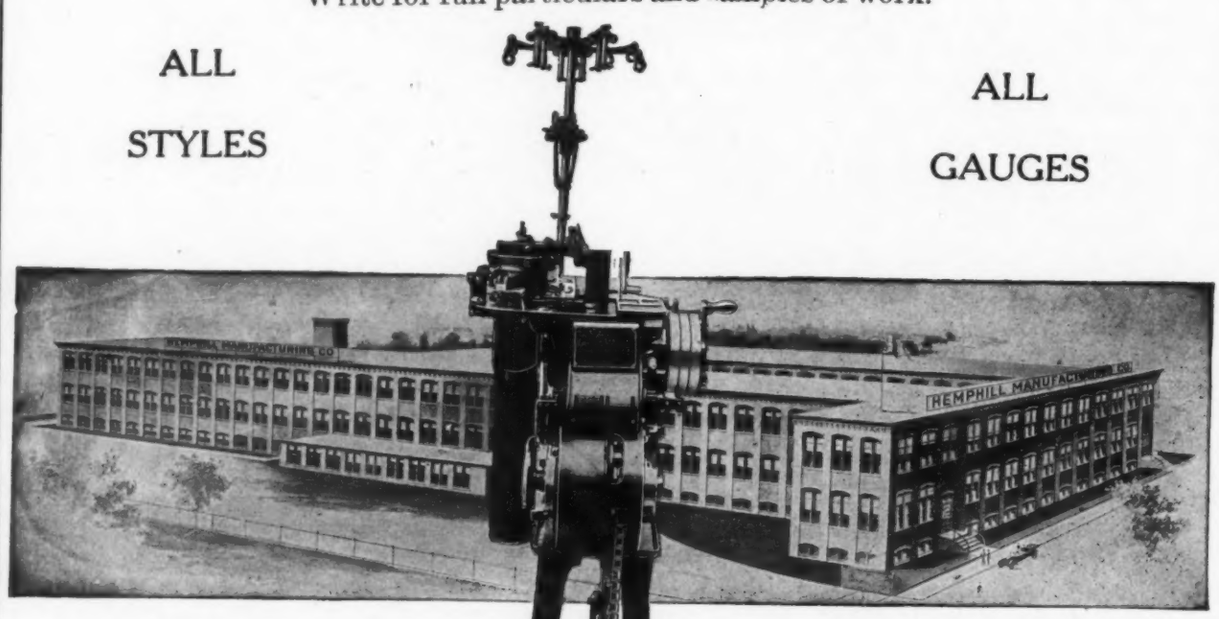
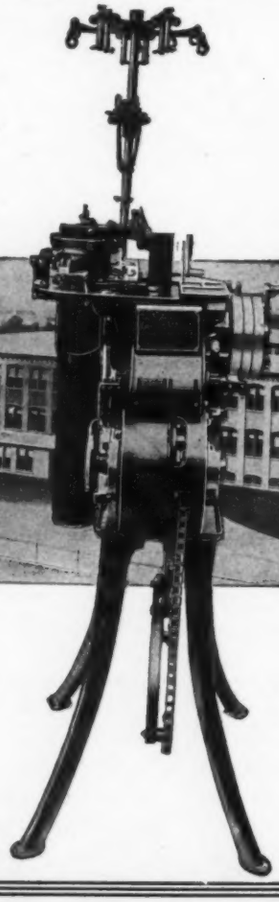




HEMPHILL COMPANY

Main Office and Factory.

Pawtucket, Rhode Island.

New York Office, Room 601 Leonard Bldg., 350 Broadway, New York.

Philadelphia Office and Showrooms, Rooms 205, 209, 210, Colonial Trust Company Bldg., 13th and Market Sts., Philadelphia, Pa.

Radical advances in mercerized hosiery prices are being scored by mills and protested by jobbers. Late July prices on women's stockings, as obtained by a large mill, were $4.50 for seamed; $4.25 for plain. The same mill, after selling mercerized half hose, 220 needle, at $3.50, late in the month advanced to $3.75.

Jobbers are up in arms over the new high prices. One writes a manufacturer: "We note your report on the advances which took place in mercerized yarns and the probability that prices will go still higher. It might be well for yarn spinners to be told, if they cannot figure for themselves, that these exorbitant prices might have the effect of compelling some buyers to buy German-made hosiery when it is offered again, much as they might like to give United States goods the preference."

While some consumers of yarn are in accord with the views of the jobber quoted, it is pointed out that one must go beyond the spinner for the explanation for high prices. As has been said, spinners, like all manufacturers, are being taxed "till it hurts." If they show a profit it is taken from them in taxes. If they don't, they are pronounced failures.

The spinner is not responsible for the high wage schedules which prevail in his mill. They are based on scales virtually established under federal control on railroads, street railways, on docks and in mines and factories. As is further shown, their cost of production is increased by the lessened output and consequent greater overhead, which can be attributed to the disinclination of labor to work more than a few hours per day or more than the fewest possible days per week. Theorists who are exploring the field of cost would gather practical knowledge if they sought the profiteer somewhere between the producer and consumer, instead of confining their vision to the plantation and factory.

Jobbers would spare themselves considerable anxiety if they gave up attempting to fix prices at the mill and in the retail store as well. They complain that a stocking that sells to them at $3.75 cannot be sold in the retail store at fifty cents a pair. That depends on how much the jobber pulls down for himself. But granted that what he says in this respect be true, there is no law to prevent the retailer getting fifty-five cents. No one who attends the movies grumbles at the odd admission price—two or three cents added to the regular admission, to cover war taxes. It costs 22 cents to get into the 20-cent movie and 55 cents to see the 50-cent pictures. A stocking that is worth 55 cents based on cost at the mill will fetch 55 cents in the retail store as easily as the doorman at the movie collects 22-cent tickets to a 20-cent show. There has been too much coddling of the retailer, who has been getting the high price ever since the country emerged from the war, while clamoring for lower prices when he comes into market for goods.

While prices of standard mercerized hosiery necessarily are high, there are instances of mills selling for less than is obtainable from merchants actually in need of goods. One of the southern lines of women's stockings, 200 needle, has been selling for some weeks at $3.75 to $4, and a house on Broadway, New York, is quoting $3.25 for 220-needle half hose.

A visiting jobber who seems to have set out to bear the market for mercerized, showed to several manufacturers an invoice for women's stockings at $2.50. It was significant that he so folded the invoice as to not disclose the date or name of the seller. Of course there are no mercerized stockings at such prices, and it is amazing that there could be found a jobber who believed it worthwhile to undertake to play on the credulity of a manufacturer of even the not well informed type.

Price variations are by no means uncommon, notwithstanding the ever-rising market and the phenomenal demand for goods. For illustration, a week or two ago a commission house was offering 176-needle half hose of the run-of-mine type at $1.17½, while the advertised price of almost the identical sock from the Durham Hosiery Mills was $1.25, and some houses were refusing to sell under $1.35. It is likely the lot at $1.17½ was a left-over of the slump period, when the price got well under one dollar in some quarters.

A mill in the South, being bare of yarns when the drop was heard, went out and bought at low prices and continued mill operations at help capacity, but offered nothing for sale. Within the last six weeks the mill sold everything in stock at $1.15 or better, and now is selling at $1.25.

Sales of women's 176-needle cotton stockings, 24 ounces, have been made right along at $1.35, which is an increase of 10 cents over the depression price, and now mills are quoting $1.40 to $1.45.

A mill making combed peeler 220-needle half hose exclusively is selling at $2.55, which in some quarters is regarded low. It is, in contrast with a misses' 2-pound rib of not extra quality, which about the middle of July was going to jobbers at $1.90.

The market for silk hosiery continues to gain strength notwithstanding the decline in the price of raw silk, which fell off to $9.50 for hosiery tram Best No. 1 to extra. Silk thread, however, is as scarce as when the unthrown was selling well above $10, and has not felt the effect of the drop. Throwsters in some sections have been able to obtain a wage increase amounting to 10 cents a pound. A mill which is consuming 1000 pounds a day and therefore has a higher operating cost by $100 a day, fortunately provided for the increase some weeks ago.

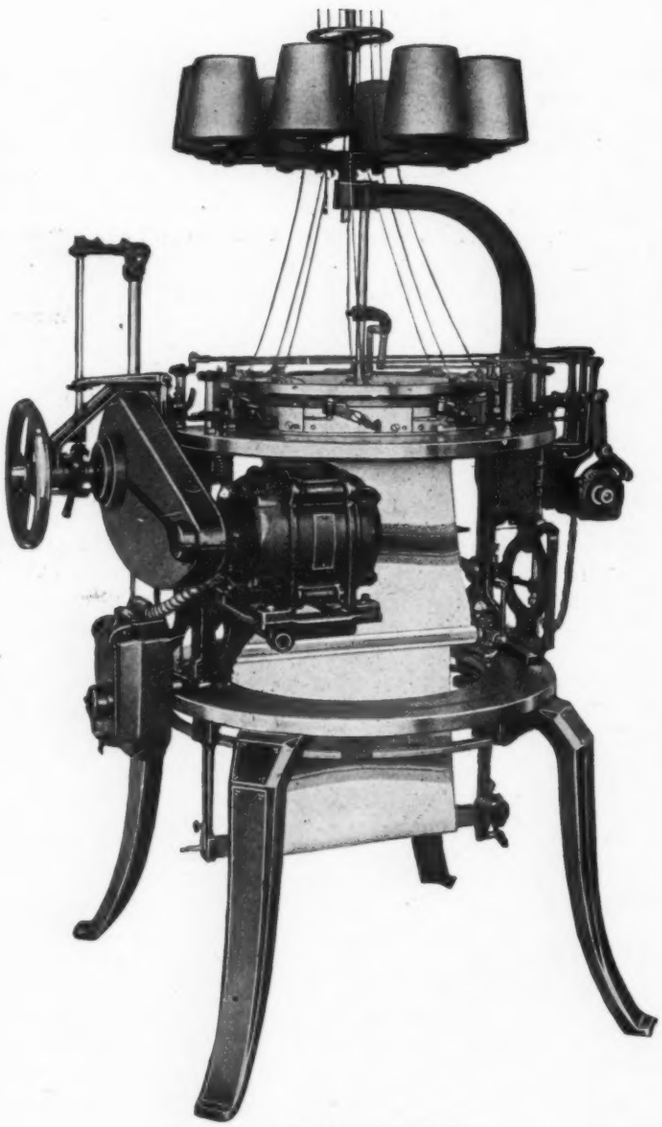
A Pennsylvania full fashioned mill quite recently opened its line of 10 strand silks for women at $24, and, it is understood, is getting $8.50 for half hose.

A New Orleans jobber was unable to obtain any worth while quantity of full fashioned silks, and paid $14 for mock fashion made on a circular spring beard needle machine, a line which, the last time he was in the market, he bought for $9.50. A slightly coarser gauge of women's mock fashion silks made on latch needle machines sells at $11.50.

Increased use of silk underwear is having an effect in two directions. It is cutting into the business of the manufacturers of the finer grades of cotton and worsted underwear, say a few mill executives, and is a contributing factor in the high prices of silk hosiery. Silk underwear mills, it is commonly reported, are sold up for the entire year.

A large department store is advertising men's imported half hose at $2.50 for tan and white lisle; $3 for black, white, gray and navy ribbed lisle; and $3.50 for black-and-white and black-and-blue striped lisle with hand clocks. The advertisement states: "These goods were bought in England a year ago; have just come in; prices have advanced 50 per cent. since then, but we will sell the lot based on the old cost."

Wildman Motor Drive



Drive on Bathing Suit Machine
Back View.

Look this drive over, and then go out in your knitting room and form a mental picture of how it would look if all the machines were equipped with Individual Motors. Dangerous belts and unsightly line shafts done away with, bettering the light and adding to the convenience of the knitting department.

But the improved appearance of the knitting room is not the only advantage. The motor drive increases the production of the machines 10 to 15%, as the loss due to belt slippage is entirely done away with.

The drive can be attached to a Wildman Belt Driven Machine in a half hour's time, by simply taking out the old side and slipping in the new drive complete. No drilling or tapping is necessary.

WILDMAN MFG. CO.

ESTABLISHED 1889 **NORRISTOWN, PA.**

An interesting situation in misses' 28 ounce ribbed stockings has developed, positive evidence of a scarcity being made manifest about the first of July, when a large New York operator in the Broadway-Leonard street district came into the market for very great quantities. One well known mill received from a New York house an inquiry as to price and delivery of 22,000 dozens. It is understood the mill's reply was to the effect that it had nothing to offer at any price, having sold up for a number of months at prices ranging from $1.60 to $1.75 on size 7, rise 7½ cents, fall five cents.

A new high price was put on misses' ribs on July 10 when two well known mills advanced to $2 a dozen on size 7, rise 7½ cents and fall five cents, net 30 days, f. o. b. mill. In explanation, one of these manufacturers says: "The advance was absolutely necessary, owing to the high cost of yarn, which has gone to near war-times; low production and high labor cost, and advances in the cost of fuel. I am afraid the high price of these stockings has not been reached. We are offering our line at $2 for immediate acceptance only. This is still 30 cents under our price in the Fall of 1918."

It is but a few weeks since misses' 28 ounce ribs were draggy for a time at $1.25, jumping quickly to $1.35, where they remained for a week or two, moving by five-cent rises to $1.75. One explanation for the scarcity is shortage of help, especially in some of the southern mills which were the dependence of a number of jobbers for this type of stocking.

An extra good misses' rib weighing around 28 ounces is being held for a little better than $2 for black, 15 cents additional for rich shade of brown described as Russian. Even a higher price is being quoted flat for an average run of quantities in sizes 7 to 10. The stocking is attracting no little attention, and the mill making it has been indifferent for several weeks about considering business except at top price.

A line of women's 188 to 200 needle stockings, carded 18s, is being held for $1.65 and is not being offered.

Infants mercerized fancy top socks of one mill are going to jobbers against recent orders at higher prices than ever were obtained by the mill during the war, and at these figures business is being rejected by the mill because it is committed for about all that can be turned out in the next several months.

A Pennsylvania mill has withdrawn its carded 200 needle half hose, high-spliced heel and double sole, at $1.55, the last price at which business in the line was accepted.

Scarcity of silk has influenced some manufacturers to curtail their output of silk hosiery and increase production of mercerized. While this course has a tendency to work toward a tightening of the situation as to silks it is operating in the direction of bringing full-fashioned mercerized into stronger competition with the seamless. The latter, seamed to represent fashioned goods, are expected to hold their own, however, as demand is keen and the difference in price is too great to insure the fashioned mercerized the same relative lead that is held by fashioned silks over seamless.

Production of even some of the cheaper lines of hosiery has fallen off as a result of what has been going on in the yarn market. A Pennsylvania mill having a reputation for its 144 needle half hose refused a 10,000 dozen order at better than $1.25 a dozen. The chief reason for declining this business was the fact that the mill had sold as far as it could from yarns in stock and was unwilling to hazard commitments for deliveries from yarn yet to be bought. The disposition seems to be—in some mills—to pursue an absolutely safe course as between hosiery and yarn until the market shows evidence of having become settled.

Job lots of yarn have in the the main been taken by manufacturers, and there are few counts on the market at a low price. Manufacturers, like jobbers, were waiting for the opposite of what has occurred, and mills now are in the position of being forced to advance their prices to a level with new yarn values, for the present restricting production to the extent for which they are covered for requirements. A recent purchase of yarn going into misses' coarse gauge ribs cost a manufacturer just seven cents more than he paid to the same spinner but one week before.

Manufacturers are complaining of unsatisfactory deliveries of yarn from a number of mills in which, it is asserted, there appears an inclination to forget past orders and give precedence to those accepted at higher prices. Not a few mills are in distress for want of yarn.

A large part of the interest in hosiery continues to centre in the full fashioned for women, who are buying about 6,000,000 dozen pairs per year. The annual total full fashioned output is estimated at 7,000,000 dozen pairs, of which about 750,000 dozen pairs are half hose. In explanation as to why the division of the two classes is so disproportionate it is stated that men are not so finicky about their leg covering as are women and that as they do not ordinarily expose so much of the limb they are less inclined to attempt the extraordinary in neatness and shape. Furthermore, it is held, because of half hose being about half the length of women's stockings it is possible to approximate the fashioned effect on circular machines.

Since 1914 there has been an increase of only about 550 full fashioned machines in the United States—not sufficient to take care of the normal increase in consumption. Production for the current selling season was materially reduced as a result of the fourteen-weeks strike in Philadelphia several months ago, one effect of which was to work toward higher prices, a burden falling on the consumer as a part of the penalty for the stubborness of labor and the almost common acquiescence in the demand for higher pay and the lower yield which followed the coming of the shorter work day.

In very recent months the spectacular rise in the price of silk has been more a high-cost factor than the advances which have been made to mill help. When raw silk reached $7.50 a pound during the war fear was expressed in the trade that the public would not pay the price and the silk industry was doomed to go to the dogs. Like many another bug-a-boo that rose to worry silk interests, this fear speedily vanished and in its place has come assurance that the public will not only pay the price of to-day but would pay more rather than be denied the comfort and luxury of silk stockings. So that with raw silk selling at and around $10 manufacturers are to be found who are eager to buy for anticipated requirements. And it would seem they are doing so with reasonable assurance of safety, for it does not appear that for a long time will there be a surplus of full fashioned or seamless silk hosiery, nor are there indications of a decline in silk prices.

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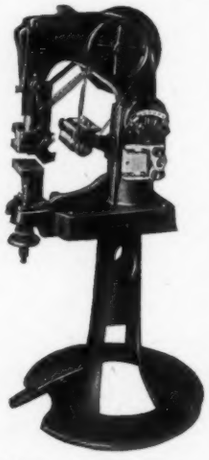
are offered you, not as an experiment, but as the concrete expression of a most important part of a MARKING SYSTEM, which is the result of many years' investigation and experience. The machine—as well as the system—represents the matured ideas of marking experts—and therefore can be used with a feeling of complete confidence.

At present, National Marking Machines are being used with signal advantage in the following plants, mills, laundries and institutions—



Model H-3 Marking Machine. Marks by means of a die.

Mill Village Laundries

use them for marking linens.

Cotton Mills and Finishing Plants

use them for marking finished goods with the brand name and trade-mark.

Dyeing, Bleaching and Finishing Plants

use them for marking goods with seller's brand and trade-mark.

Knit Goods Plants

use them for marking the lot, stock, and size numbers on finished garments—such as underwear and hosiery.

Improved No. 8 National Power Marking Machine. Operates like a typewriter.

They are also used for

marking nurses' uniforms and surgeons' apparel in first-aid hospitals; for marking linen supplies of factory restaurants; for marking the linen of the welfare department.

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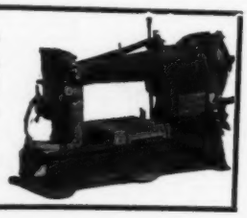
are used for ALL marking purposes BECAUSE they are indelible, flow easily, non-smearing and make a clean-cut mark.

This Rose Label, Tape and Patch Sewing Machine sews a fabric tag on laundry work that can's be marked direct. Also sews patches on union suits for reinforcements for buttonholes. Can be operated at terrific speed by inexperienced operator.



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It is doubtful whether in the next twelve months—or until the factory of Scott & Williams, Inc., now under construction, has been completed—the total output of full fashioned machinery in the United States will exceed 250 machines, so that the increase in production of full fashion hosiery will be slow. With the greater output there is not likely to come any decline in prices, as the cost of the machines has increased about 100 per cent, and if wages continue to rise and the work day be shortened, there must come an additional increase. Needles which cost full fashioned manufacturers about $3.25 per 1000 prior to the outbreak of the war are commanding around $12 to $15. The works, which has had a practical monopoly of the supplying of full fashioned machines since importations from Germany ceased, has doubled the capacity of its plant, and is understood to have sold every machine that can be built in the next 18 months. The outlook, therefore, for any material loosening of the full fashioned hosiery shortage is not bright, particularly when it is considered that much of the new machinery will simply replace machines that would have been scrapped months ago had it been possible to supplant them.

Work has been started on the factory of Scott & Williams, Inc., at Lakeport, N. H., which is to be devoted to the manufacture of full fashioned machinery, but it is regarded not probable that the first machine will be turned out inside of one year. The factory building will be of five stories, 200 feet long, by 63 feet wide, of reinforced concrete flat slab construction, and modern in every detail. In it will be housed the machinery at present contained in an old wooden structure. In addition to the factory there will be erected a boiler house, to be equipped for a 300 horse power boiler capacity, together with necessary auxiliaries. The water power on the property will be developed electrically and the new factory driven by electric motors from this power. Both the factory and boiler house are designed for extension as future needs require.

Lockwood, Greene & Co., Chicago, are the engineers in charge of the construction of the Scott & Williams plant.

While hosiery exports for May, the last month for which official figures have been obtained, show a slight falling off as in contrast with April, interest in goods for foreign trade is in the other direction. The exports in May amounted to a total of 689,382 dozens, of an invoice value of $2,242,914. Of these 518,459 dozens were cotton, valued at $1,454,173, and 170,923 artificial silk, $788,741. This is a decrease of 36,760 in the total dozens as compared with April. There was a gain of 34,671 dozens of artificial silk and a loss of 71,531 of cotton. The larger takings in May were: England, 132,586 dozens of artificial silk and 91,884 cotton; Australia, 74,710 cotton, 12,908 artificial silk; Cuba, 47,578 cotton; British South Africa, 19,364 cotton, 4,947 artificial silk; Philippine Islands, 21,575 cotton; Uruguay, 14,253 cotton, 1,024 artificial silk; Denmark, 12,946 cotton; Belgium, 29,354 cotton; Norway, 16,850 cotton; Switzerland, 12,155 cotton, 1,913 artificial silk; Turkey in Europe, 12,570 cotton, 5,000 artificial silk; Canada, 39,762 cotton, 4,491 artificial silk; Mexico, 12,533 cotton; Brazil and Chile, each 15,000 cotton; China, 5,758 cotton.

Greece, which took 76,123 dozens of cotton in April, does not appear in the report for May. England took 39,818 more dozens of artificial silk in May than in April.

A newspaper report on the day after Germany signed the treaty of peace was to the effect that the National City Bank of New York had established a branch in Berlin. This is denied by the bank, which states that it does not have either a branch or agency in either Berlin or Danzig.

Finishing Knit Goods.

BY WILLIAM DAVIS, M. A.

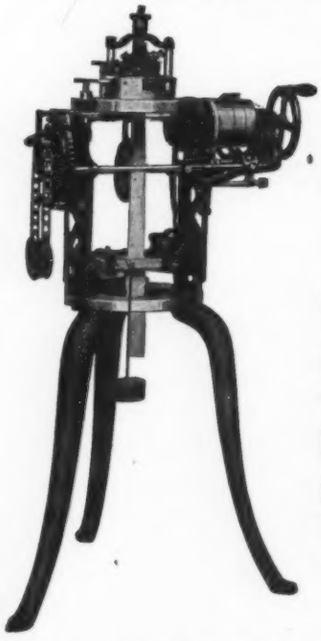
Other washing machines used for knit goods are those which have the circular principle of motion embodied in their construction in some form or another. In the earlier models of the ordinary scouring machine the tubs were constructed circular in form but worked by the descending of the beaters in rapid succession as for the rectangular tub and many of these are in use at the present day for scouring knit goods. The tubs revolve continuously, this motion being supplied by a cog wheel which gears into a wheel surrounding the bottom of each tub. At first sight this circular machine gives the appearance of being very thorough in its action and the goods would appear to have a constant motion imparted to them. Such is not the case in practice because when the tub is revolving with its goods, the latter prefer the line of least resistance and tend to congregate towards the center. The tub revolves continuously but the goods are not taken with it to any great extent, because of the tendency for them to gather in or near the center.

This has a disadvantage in that the goods at the center come under the direct action of the center beater of the machine, whereas the goods farther out receive less attention from the other beaters in their journey round a larger circumference. Thus you may have one sleeve of a shirt entangled in the central vortex, whilst the other is free to waltz around the rest of the tub. The centrally placed sleeve receives 100 blows from the central beater to every 20 that the second sleeve gets from the side beaters and in this way the center sleeve if it be made from wool, or cotton and wool, mixed, will soon show a greater contraction than the other and on being examined will be appreciably shorter than its neighbor. This may be avoided to a certain extent by placing the center beater in the non-operative position so that the side beaters can overtake it in its total number of beats. It will be seen that whilst this may reduce the chances of such grave irregularities, the circular tub has obvious disadvantages compared with the rectangular variety.

The rotary fulling machine is very popular with knit goods manufacturers in most countries. In the machines just mentioned with the tubs and beaters, the scouring action is brought about by the expression of liquor in the goods caused by the beaters or hammers descending onto them. This squeezing of the scouring liquor from the garments causes the dirt and foreign bodies to be swilled out and the lifting of the hammer or beater enables the material to reabsorb the scouring liquor so that the expression of the dirt particles may be repeated as before.

In scouring, the action should not be too severe, there should be a light "come and go" between the material and the scouring liquor so that the foreign bodies may swim out of the material with freedom. It is exactly this point which is not fulfilled in cases where fulling and scouring are done at one operation in the fulling mill. When goods

H. BRINTON CO.



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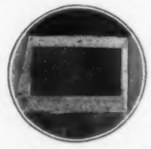

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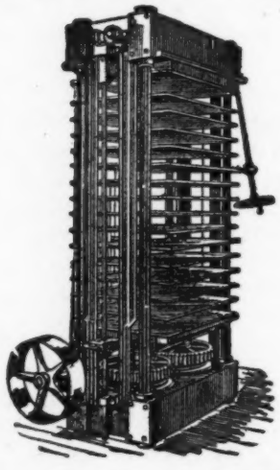

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are to be fulled, the object is to exert as much firm pressure as possible on the goods to induce their shrinkage. If this pressure is exerted before the rougher dirt particles, oil and fat have been removed, the effect of the action of the beaters of the fulling machine is to press the particles of foreign matter more firmly into the body of the goods and cause them to adhere more firmly than ever.

The whole question therefore depends on the condition of the goods, if they are worked from yarns which have been dry spun and comparatively free from foreign matter, then the fulling and scouring may be done quite well in one operation, but if they are made from dirty yarn, spun in the grease with vegetable and other foreign bodies embedded in the material, then they should first be given a gentle scour action in the washing machine to get the extraneous materials free. If goods are very dirty, a preliminary steep may be beneficial in loosening the impurities, but it seldom happens that they are in such a filthy condition as to make this necessary.

It may be difficult to believe, but today there are certain manufacturers in the knitting business who do not fully appreciate the great value of keeping the floors of the mill in a clean condition. This is often the result of training in other branches of the textile industry where the association of dirt and oil in the yarn or fabric does not necessitate such careful attention to cleanliness. Thorough sweeping of the floors should be made each day. Careful sweeping is emphasized because it is necessary to take precautions to avoid the dirt flying about in the air in such a way that the grit will catch on the needles and sinkers of the frame and impede their action or cause greater friction. On the other hand, the knit goods manufacturer has in his plant machines with needles, sinkers, etc., which are very sensitive to the action of moisture, so that whilst the floors of the factory should be frequently swept with a minimum of flying gritty dust particles, washing of the floors should be done as seldom as possible owing to the readiness with which the needles and sinkers of the frame can be rusted up, due to the moisture created when the floors are drying. This is particularly the danger when there are soft wooden floors which absorb readily a large proportion of water and yield it up again but slowly.

WASHING PRINCIPLE IN THE ROTARY MACHINE.

Figure 4 gives a view of a very popular and efficient circular washing machine which is largely used by knit goods makers. It is very simple in construction and from the figure will be seen to consist of a wooden case on the outside provided with a curtain which can be raised to admit the goods and tightly shut to prevent the egress of the liquor during souring. It will be noted that there is also an inner chamber in the machine which is perforated with numerous holes all over its circumference, whilst the inner chamber has a lid which is opened to admit the goods and shut to keep them secure. The liquor is prepared and run into the vessel to a convenient height and the inner chamber is made to revolve and carry the goods freely into the scouring liquor at each revolution. In one revolution of the inner chamber the goods lap up the scouring liquor and this is afterwards ejected from the goods again through the perforations of the inner chamber according to the principle of centrifugal force. The goods receive or absorb the liquor in their contact with the scour, and the rotary action of the machine forces the liquor out of the articles once again and as the water is being ejected the impurities and foreign bodies are swilled out along with it. The liquor is enabled to indulge its tendency to go off on a tangent

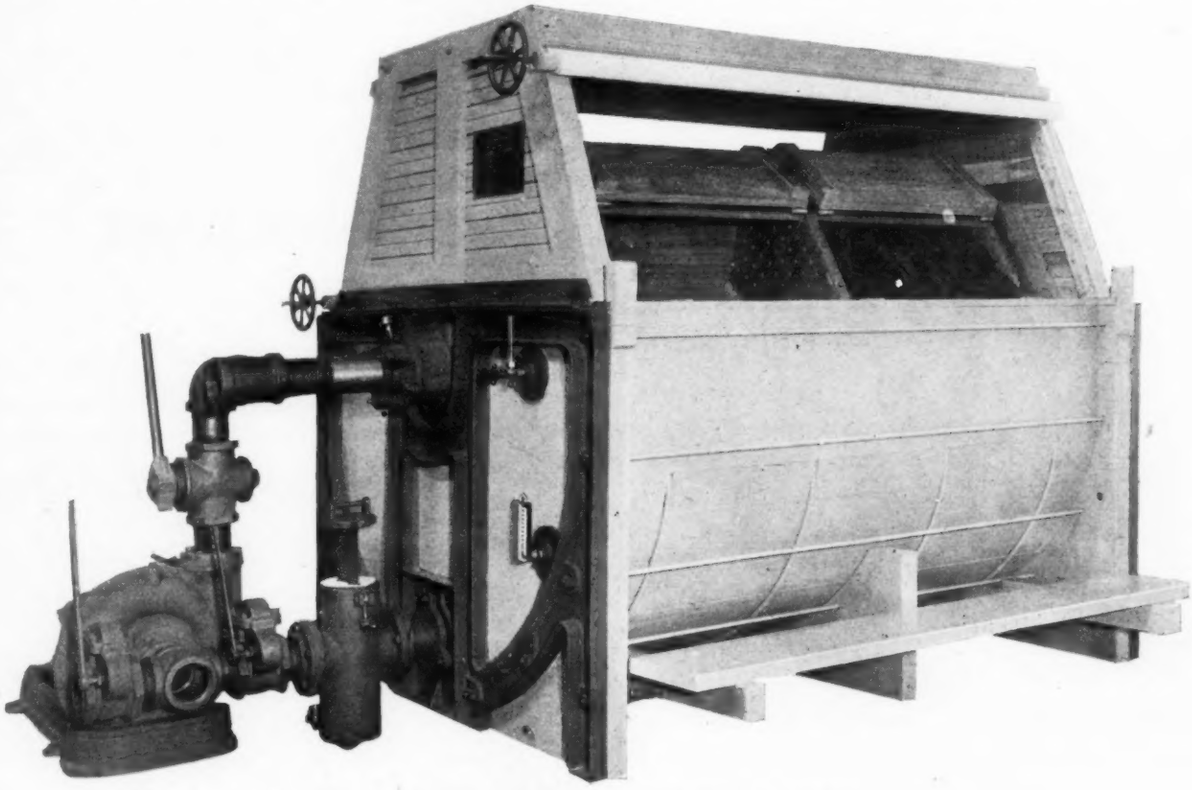

FIG. 4. ROTARY WASHING MACHINE FOR KNIT GOODS.

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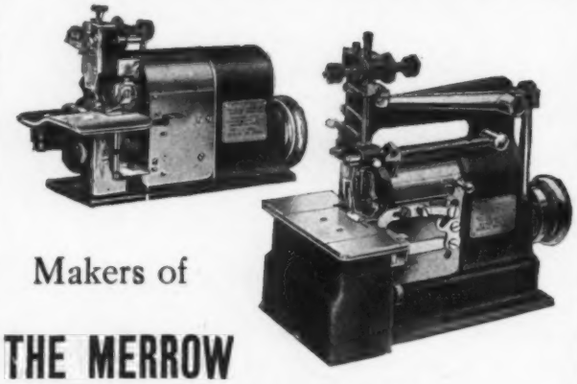

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by the presence of the perforations which make possible the egress of the water absorbed by the goods. With each revolution of the chamber the goods absorb the liquor afresh and have it again extracted in the way described.

It will be understood from the nature of the washing action in this type of machine that the process is much gentler than in the other machines described where there is a direct beating action from the hammers, but the rotary type has nevertheless a special place of usefulness in the knit goods industry. One advantage is that the liquor is retained inside the vessel till the finish of the operation and there is no splashing of soap all over the floor with attendant danger to the health of the worker. The drive of the machine is of the reversible type so the inner cylinder may be made to revolve in one direction; after a little the goods tend to assume certain definite positions in the chamber and to avoid this and shake them out free again the motion of the machine is reversed, making the cylinder revolve in an opposite direction.

It will also be noted that the centrifugal pump at the left of the machine allows the use of a more positive circulation of the scouring liquor. When the pump is started the liquor is drawn from the bottom of the tub and forced into the center axle, which is hollow and perforated, and thence out through the goods again. Such a machine may also be used for dyeing and similar processes. A thermometer on the end of the machine allows the operator to check his temperatures at will. A glass gauge, near the top of the box, fixes the level of the liquor, even when the top is tightly drawn down in operation.

At the same time it is evident from the nature of the rotary scourer that it is not suited for goods which are excessively dirty, its chief usefulness lying in the direction of cleansing fine gauge fabrics which are but lightly soiled through undergoing the usual processes of manufacture; nor is this machine of much service in securing any degree of fulling of woolen articles. It is however often used as an accessory to the heavier fulling machines, in the direction of rinsing the goods which have been treated in the soap or alkaline solutions. When goods are heavily treated in soapy solutions, especially those containing an excess of alkali, then they should be carefully rinsed before drying off. Neglect of the simple precaution of rinsing gives rise to numerous defects in the finished fabrics. The soap dries onto the surface of the goods and dulls their lustre whilst it also causes the wool fibres to adhere in bunches, giving the texture a disagreeably sticky handle. If the free alkali be not neutralized this has a more drastic effect on the wool fibre causing it to weaken in strength. For such rinsing the rotary scourer is largely used, the goods being run in this machine in cold water for a short time which has the effect of neutralizing the effects of soap and alkali.

When knit goods have been scoured and if necessary fulled, they are afterwards placed on boards to the required shape and dried in a hot chamber. In other cases the goods are taken directly after boarding and placed between the beds of the hot press which gives them definiteness of shape and imparts an improved appearance to them. The boards are stocked in a variety of sizes and shapes according to the type of article handled and there is a little leeway which the manufacturer is enabled to make-up, if his goods are not quite up to the required size. In pressing, the creases are removed from the goods and surface irregularities smoothed out, so as to allow of an undisturbed reflection of light from the fabrics. The knitted form is also equalized and the whole texture rendered more homogeneous in appearance. In the case of woolen goods the effect of pressing is a part of a larger property possessed by the wool fibre in particular. When the material is steeped for a time in scouring liquor the fibres become softened and the material becomes plastic. When damp and in the plastic state woolen garments can be readily moulded to any desired shape and the material within certain limits yields to pressure in all directions to assume a new shape or modifications of its present form.

When woolen articles are placed between the beds of the hot press the heat dries the material to the shape of the boards on which they are stretched, angularities are nicely rounded off by the contour of the boards, and the whole garment rendered more symmetrical. In addition, pressure between the beds of the steam press levels out the minor irregularities and gives to the surface a clear, lustrous appearance. It should, however, be known that this property of stretching the garments on the boards prior to pressing can only be performed on strictly limited lines and that if the garments are pulled excessively out of their

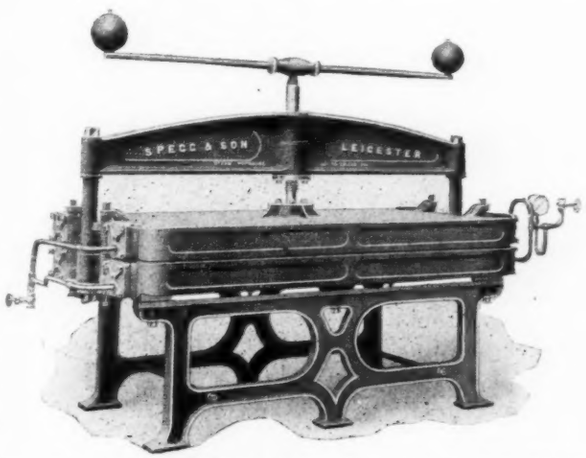

FIG. 5. A SINGLE BED, HAND OPERATED STEAM PRESS.

natural shape on the boards, they will take a nasty revenge whenever subjected to washing; they will contract considerably below their normal size, which will undoubtedly react on the manufacturer by effectively creating that "much-to-be-feared" individual the dissatisfied customer. Figure 5 gives an illustration of a type of steam press often used by makers of knitted goods and which gives very satisfactory results in practice. The machine consists of two beds, an upper and a lower, each of which has jacketing to accommodate the steam from which the heat is obtained. The steam is supplied from the mill and finds its entrance at the right by means of the pipes shown whilst the operator has to keep a watchful eye on the indicator to note that the pressure is correct. On the left is an arrangement for getting rid of the water of condensation which can be drawn off from the beds at intervals so as to preserve the maximum heating capacity of the beds. The lower bed is fixed and the upper bed made to approach the lower one or move away from it according as the goods are being placed in the machine or withdrawn from it. In the older forms of primitive press, the worker had to turn continuously a screw arrangement by hand to bring the upper press down onto the lower one but in this variety we have a large lever

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overhead with heavy balls at each end. The operator gives this lever a swing to control the upper press and for the final tighten up the long rods provide a most efficient leverage for making the pressure secure. Usually two operators are required for this machine one to put in the garments and the other to draw them out when pressed.

Figure 6 gives a view of a modern steam press where a much larger output is possible. From the illustration it is clear that there are 13 plates instead of 2. The principle of this machine is exactly as that described for the single press except that the plates are operated by power in place of

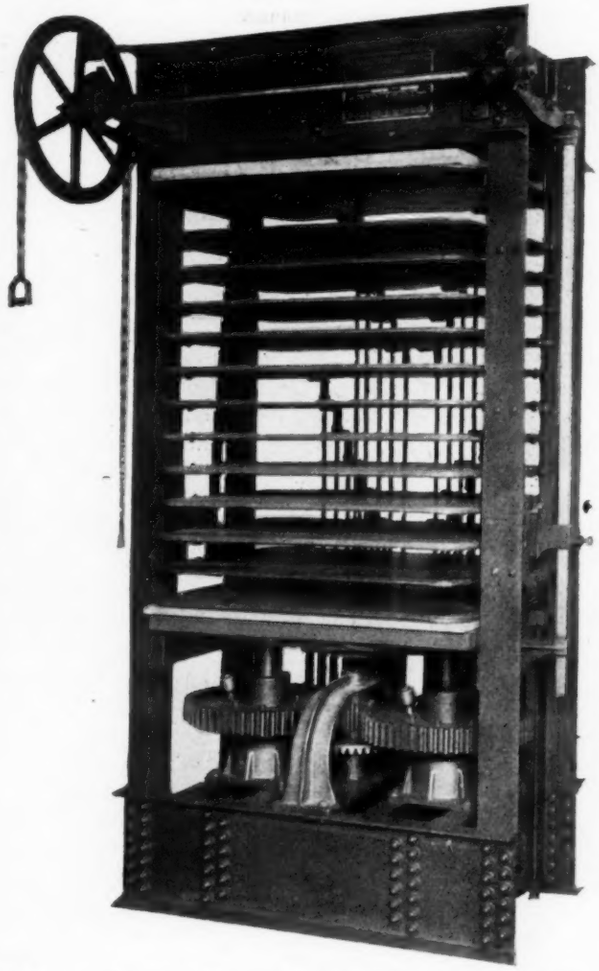

FIG. 6. A TYPE OF MODERN POWER PRESS WITH HOT OR COLD PLATES.

Courtesy the Philadelphia Drying Machinery Co.

the large swinging lever with the balls at each end. This machine has attachments for insuring that the plates are kept parallel so that every part of a garment receives equal pressure and precautions should be taken to regulate the heat and the time of treatment of the goods in such a way as will give them an adequate pressing without the danger of scorching the material or of giving a glazed appearance to the goods. If the period of treatment is too long or the heat applied is too great, then the goods will be scorched and their quality thereby very much impaired. There will also be a tendency to have the face of the garments highly glazed, which is an appearance much detested by the careful buyer, especially if the goods are of the more expensive class. An excessive glaze on the goods gives rise to the suspicion that pressing has been employed as a means of glossing over inferior material rather than improving the natural good qualities.

The methods of pressing just described are employed in the case of separate garments and the process is done just after scouring or fulling. When the garments have been trimmed and provided with buttons and fronts, etc., they are usually subjected to a short process of cold pressing where the garments are placed between glazed cardboards and a pile of them pressed to give them an improved appearance before shipping and also to remove the trifling irregularities which may have developed in their progress through the trimming operations. With fabrics made on circular frames the pressing can be done much more expeditiously in a machine of the calender type which is steam-heated inside the pressing rollers. The fabric is passed between these rollers where it receives a lustre and gloss. The fabric is fed to the machine and is effectively pressd as it passes through, an operation admittedly more expeditious than that of dealing with separate garments. When such fabric is made up into garments, however, they have to be subjected to a second operation of pressing to render the goods marketable.

Among the Knitting Mills.

The Nu-Tex Hosiery Company, Utica, N. Y., has filed articles of incorporation with a capital of $25,000 to engage in the manufacture of hosiery, etc. E. W. Robischon, Mt. Vernon; M. F. Robischon, and J. Joseph Robischon, Utica, are the incorporators.

The Winsted Hosiery Company, Norfolk, Conn., has recently completed the installation of a number of new knitting machines at its plant, to provide for increased operations.

The Ashe Mills, Inc., Rensselaer, N. Y., operating a local plant for the manufacture of knit goods, has filed articles of incorporation with a capital of $25,000. P. E. Ashe, Rennselaer, also D. K. and E. E. Gormley, of Troy, are the incorporators.

The Paramount Knitting Company, Kankakee, Ill., has recently broken ground for the construction of a new reinforced-concrete addition at its plant, three-stories, about 100x100 feet, to provide for increased capacity.

The Mutual Hosiery Company, Philadelphia, Pa., has recently awarded a contract for the construction of a new two-story brick plant, about 50x110 and 43x82 feet, to be located at Cottman and Tulip Streets. The structure is estimated to cost $40,000.

The Knit Trico Company, Inc., Brooklyn, N. Y., has been incorporated with a capital of $25,000 to manufacture knit goods. Julius Schwarz and L. J. Murphy are the principal incorporators.

Notice has been filed wtih the Secretary of State by the Shaughnessy Knitting Company, Watertown, N. Y., of an increase in its capitalization from $100,000 to $300,000 to provide for general expansion.

The West Branch Knitting Company, Milton, Pa., is said to be planning for the construction of a new addition to its plant, to practically double the present capacity. Edward T. Hecht is president.

The F. J. Shutts Company, Ballston Spa, N. Y., manufacturer of hosiery and knit goods, is making rapid progress on the construction of a new four-story addition, about

50x70 feet, to its plant on Ralph Street. The new structure is to provide for increased capacity. The company was formerly located at Amsterdam, N. Y., and during the past fall removed to the present location.

The Gray, Barr Company, Elyria, O., recently incorporated with a capital of $100,000, is understood to have arranged plans for the construction of the first unit of its proposed new local plant. The company is to engage in the manufacture of hosiery, and it is said that three additional units similar to the first will be erected at a later date.

The New Castle Knitting Mills, South Mill Street, New Castle, Pa., have recently completed arrangements for the installation of a number of new knitting machines at their plant, to provide for increased capacity. Upon completion of the work, a total of 150 machines will be in operation.

Negotiations have recently been completed by the Wasman Knitting Company, Honesdale, Pa., for the purchase of property formerly owned by the Lutheran Church, and plans are being made for extensive remodeling and improvement of the property for occupation. Upon completion of the work, necessary machinery will be installed, to give employment for initial operations, to about 30 operatives. Leo Wasman heads the company.

The Sagamon Mills, Cohoes, N. Y., have completed arrangements for the installation of a quantity of new knitting machines at their plant, to provide for increased capacity.

The Champion Knitting Mills, to make mercerized half hose of the better grades, has been established in Chattanooga, Tenn., by Walter C. Champion, who is president of the Company, and J. O. Dills, general manager. Mr. Dills formerly was connected with W. B. Davis & Son, Fort Payne, Ala. Mr. Champion several years ago entered the employ of a Philadelphia mill to learn the business, and recently resigned to engage in business. The company, whose postoffice address is East Chattanooga, starts with an initial equipment of 20 knitting machines.

A recent addition to the knitting industry in Philadelphia is the Rogers Hosiery Company, making women's 8, 10 and 12 thread 19 to 21 inch boot seamless silk stockings on spring beard needle machines. The production for several months was sold up from samples before a dozen cases had been turned out. John C. Beagary, who is the New York representative of Taubel Brothers, sells the mill's output to jobbers. He is vice-president of the company. Clarence F. Rogers is president and John Bromley secretary.

The Kachel-Lenhart Co., which some months ago took over the Ephrata (Pa.) branch of the Glasser Hosiery Company, is confining its production to 220 needle combed peeler half hose exclusively, running on but one number, and is reported sold up for the present year. The output is sold under the brand "L. K. C. Sock," through Thomas & Lingafelt, 160 Jackson Boulevard, Chicago. The company buys 16s, 18s and 20s combed peeler. The proprietors are Paul F. Kachel and Sol S. Lenhart. The company's mail address is Box 104, Reading, Pa.

Thieme Brothers Co., Fort Wayne, Ind., have awarded a contract for a new mill, to be 90 by 160 feet, four stories and basement, of reinforced concrete construction throughout. Full fashioned machinery will be installed in the new factory, which is to be completed during the Fall of the present year.

A factory building 185 by 150 feet will be erected in London, Ontario, by the Holeproof Hosiery Company, of Canada, Ltd., at an estimated cost of $300,000. In it is to be manufactured all the Canadian-made Holeproof stockings. The building will consist of four stories and basement, and will constitute a complete unit, with dye plant, power house, etc.

P. R. Dickinson, of Lebanon, N. H., has been made superintendent and general manager of the Norfolk (Va.) Knitting Mills. He succeeds D. L. Kelly, who has resigned after fifteen years service with the company. The new assistant superintendent is A. L. Stanton, of Bristol, Conn.

Work on permanent quarters for the Kernersville (N. C.) Knitting Mill company has been started. The new building will be 50x100 feet, and will be of modern mill construction and fireproof throughout. The company, recently organized by High Point capital, has been running in full force in the old Davis-Crews hosiery plant, and as soon as the new building is completed, it is the intention of the owners to operate the new equipment in addition to that already in operation at the present quarters.

A fire loss of from $30,000 to $40,000 was suffered by the Sellers Hosiery mill, near Burlington, N. C. The damage was partially covered by insurance.

F. M. Boyd is interested in a plan to establish a knitting mill at Johnston, S. C.

An increase in its capital stock from $125,000 to $250,000 was recently made by the Greenville (S. C.) Hosiery Mills, and the company is planning an enlargement of its output.

The Knoxville (Tenn.) Knitting Mills are contemplating the addition of a new plant.

The Davenport Hosiery Mills, Chattanooga, Tenn., recently capitalized at $100,000, will erect a $50,000 three-story building which will house 100 knitting machines.

The Glenn Knitting Company has been established at New Orleans, La. J. F. Carter, Jr., is president.

The High Point (N. C.) Hosiery Mills have purchased some additional property.

A $100,000 additional building and 25 cottages to cost $50,000 are to be built by the United States Hosiery Mill Corporation, at Chattanooga, Tenn.

The Trackless Train.

"The Trackless Train" is the title of a new twenty-page catalog just issued by the Mercury Manufacturing Company, 4118 South Halsted St., Chicago, Ill. It contains numerous illustrations of the "Trackless Train" in the industry and it shows a number of examples of the actual saving in cost through its use in a variety of industrial plants.

In these days of labor shortage and intensive labor costs the many advantages to be attained through a quicker and better handling of raw material and finished products is thoroughly appreciated by every manufacturer. This new catalog is full of suggestions derived from present applications and it will be sent to any reader of COTTON without charge upon request.

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If you are a wide awake mill man the experience of CHENEY BROTHERS, South Manchester, Conn., will interest you.

They write under date of April 15, 1919:

"We have thoroughly tested out your Liquid Chlorine on a practical scale and find that it is very satisfactory. We anticipate that it will not only give us a considerable saving in the price of our bleaching, but it also gives us a better white than our old method with bleaching powder, and finally the bleached goods give much better results in the dye bath."

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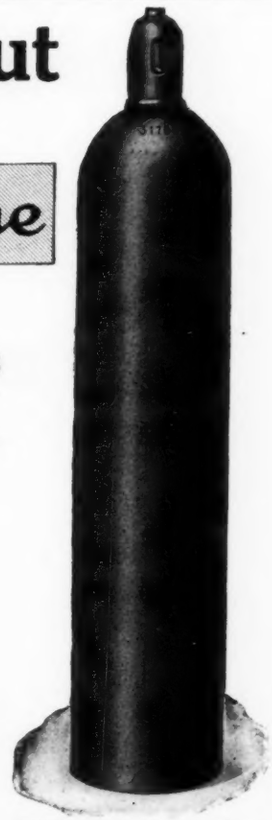

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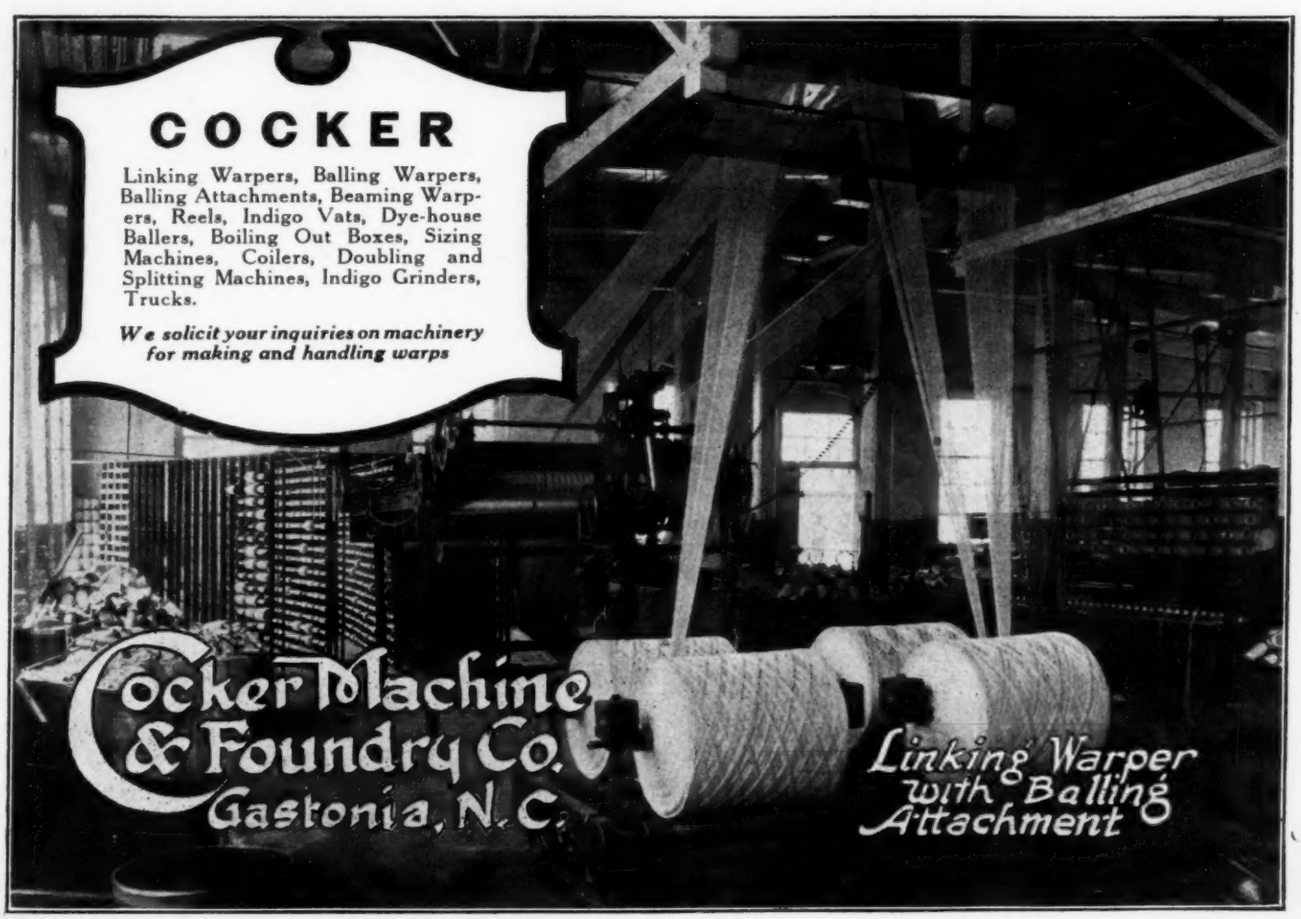
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Linking Warper with Balling Attachment

The Situation in Needles.

Embraced in an inquiry from a government commission in relation to the production of knitting needles in the United States are figures showing importations of latch needles from 1910 to 1918, both inclusive. According to this official table the importations for 1910 were 11,219 thousands, mounting to 26,751 thousands in 1913, when the peak was reached. For 1918 the importations are given as 2,121 thousands, and for the preceding year only 316 thousands, valued at $6,403. The valuation placed on the importations for 1913 was $185,625.61.

In submitting figures telling of a decrease in importations of latch needles the government commission states there has been an increase in the use of spring beard needles, and propounds a number of questions, of which the following is the substance:

1. Is the use of the spring beard needle increasing more rapidly than that of the latch needle? Are they being substituted for latch needles, or are they employed in the manufacture of varieties of knit goods not hitherto produced in large quantities?

2. Is the supply of knitting machine needles now in the United States sufficient to meet all immediate requirements? If not, of what varieties are we in greatest need?

3. Will the domestic needle manufacturers be able to meet all domestic requirements under normal industrial conditions?

4. Would knitting manufacturers favor a tariff on knitting needles? If so, would they favor a prohibitive tariff?

There are two explanations for the falling off in the importation of latch needles in 1917 and 1918, and one of these is sufficient to cover the ground—the War Trade Board during the period for which it was supreme in its particular field of usefulness would not permit them to be brought in, notwithstanding thousands of machines were idle because of lack of needles and the government and civilians were clamoring for knitted goods, domestic manufacturers being unable at the time to supply anything like needle requirements. Another reason for the drop in the two years mentioned lies in the fact that, foreseeing the complete interruption of relations with Germany, all needle importers who could do so stocked up in 1913, 1914 and 1915. By 1918 domestic manufacturers had matters pretty well in hand and were able to supply demand in some sort of fashion.

To say there is a scarcity of Banner needles and certain types of Standards and dials is to state what is patent to almost every knitting manufacturer.

The Washington commission referred to puts spring beard and sewing machine needles in one class, making it difficult to arrive at even an approximate estimate of the increase in importations of spring beard needles alone. According to some knitting manufacturers the domestic output of spring beard needles is sufficient for domestic purposes.

Necessarily more spring beard needles are being used than at any time in the past. Full fashioned machinery, using the spring beard exclusively, is being and for some months has been taxed to the utmost. Since 1914 there has been an increase of nearly 600 full fashioned machines. And in the last year or two there has been put on the market two circular machines using spring beards, one by the Wildman Manufacturing Company, the other by the Hemphill Company. Furthermore, there is being knitted varieties of fabric on spring beard machines that a few years ago were unknown.

While it is common opinion that the United States, if needle manufacturers be protected through adequate tariff, will be able to make all the needles this country can use and quantities for export, there is at present a serious shortage in several types, at least one of which is commanding a higher price than ever was paid during the recent war.

One important manufacturer, profiting by complaints that had been received as to imperfections in domestic needles, is devoting himself to quality and is giving minor attention to quantity, with the result that production is very low. Needle manufacturers have suffered from insufficient and inefficient factory help, as is true in practically every industry.

The question has been asked whether knitting manufacturers would favor a prohibitive tariff on needles. Of a number of manufacturers who have been interviewed on the subject, not one was in favor of a prohibitive tariff, and all insisted that there be provided a protective tariff, for encouraging needle manufacturers in the expansion of their plants. With such a tariff in force, it is held, there would be no serious scarcity of needles in the event that commerce and industry be again disturbed by war. It is pointed out that had there been no duty on tin plates, this country during the war would have been as badly off for tin as it was at the outstart for dyes and needles. If left to itself, unhobbled by restrictions and safeguarded against importations of needles from countries where economic conditions permit of lower cost of production, the United States needle manufacturers, knitting mill executives say, undoubtedly will work out a situation that will be satisfactory to all concerned.

The stand taken by each of a number of manufacturers to whom the questions of the Washington commission were submitted is expressed in the following reports of interviews:

A hosiery manufacturer said: "The American manufacturers of latch needles are producing inadequate supplies. The supply is very much below normal. Our mill has had several types of needles on order for two years without securing delivery. The Japanese needles that we tried have been failures. Domestic manufacturers are increasing their production and should be able to meet all requirements under normal industrial conditions. With the present tariff schedules remaining in force no doubt a considerable quantity of needles will be imported into this country in the next six months, due to the fact that a large number of knitting machines of every type are idle in Belgium and France and those in Germany cannot be manned for some time. For the present, European consumption of needles will be sub-normal."

Most of the manufacturers interviewed were in favor of a protective tariff, while none favored a prohibitive tariff. One said on this subject: "I would favor the government giving the needle manufacturers in this country ample protection, to enable them to enlarge their plants, so that they can eventually supply us with all the needles we will require. I am opposed to legislation that would pre-

(*Continued on page* 670.)

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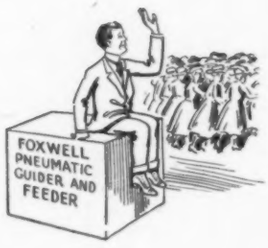

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Produces an even **Bleach** or **Dye.**

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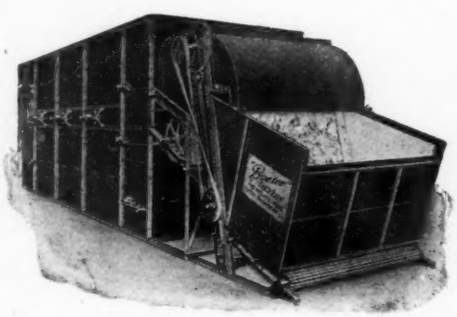

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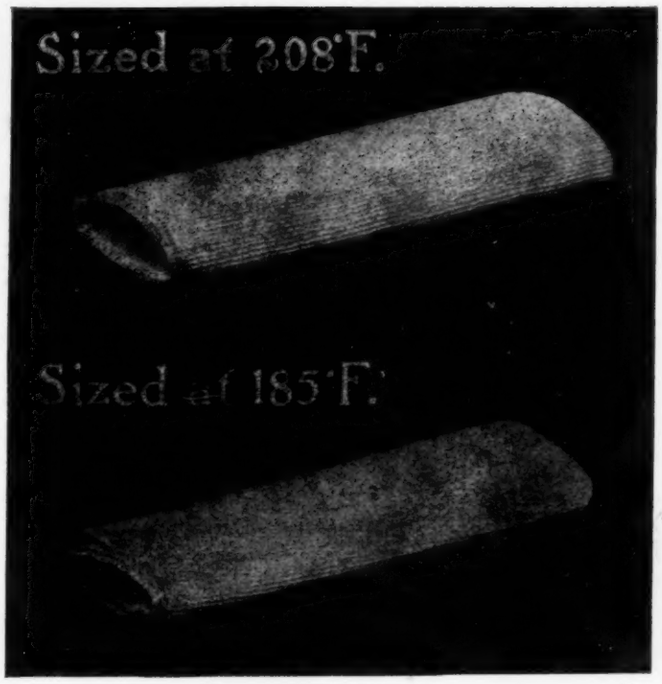

"A Better Product With Less Loom Breakage"

THE above illustration is a photographic reproduction of two pieces of cloth (woven at the same mill) before they were boiled out, scoured or bleached. The "size" mixture, yarn, etc., were identical except that each piece of cloth was sized at *different* temperatures.

Note the difference in texture—how much softer and more uniform in appearance the texture is where the warp had been sized at a lower temperature and *uniformly* maintained at 185° F. by having the size boxes equipped with

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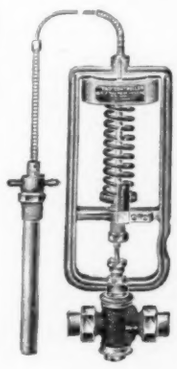

Moreover, the mill superintendent reports that "the warps are now woven easier with *less breakage* of yarn and the cloth is *superior* in feel and cover."

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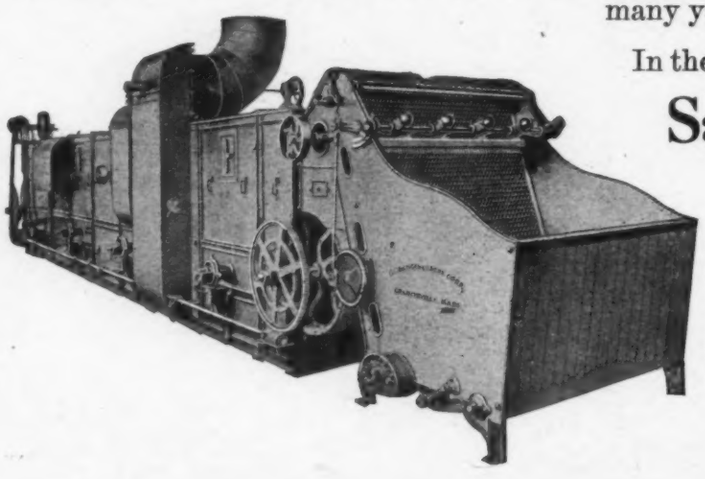

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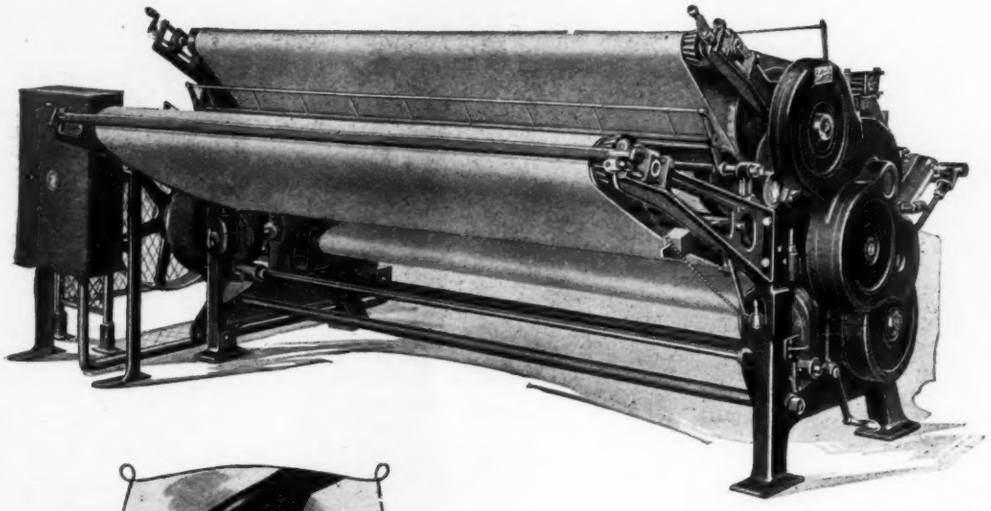

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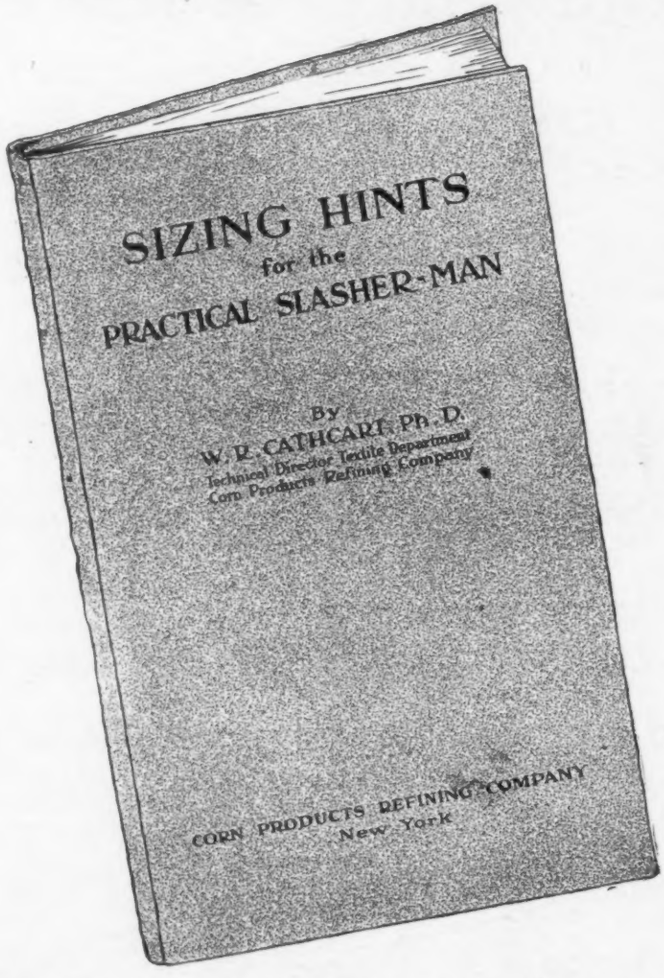

This booklet, *Sizing Hints for the Practical Slasher-Man*, by Dr. William R. Cathcart, Technical Director of the Textile Department of the Corn Products Refining Company, first appeared at the Southern Textile Exposition at Greenville, S. C., in May, 1919. The very favorable comment which this publication has received and the numerous requests for copies show that the Textile Manufacturers attach more than a passing interest to the subject matter contained therein. In many cases officers and superintendents have asked for several copies to be distributed among the men actually engaged in the manufacturing operations.

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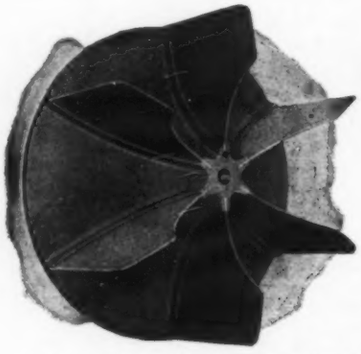

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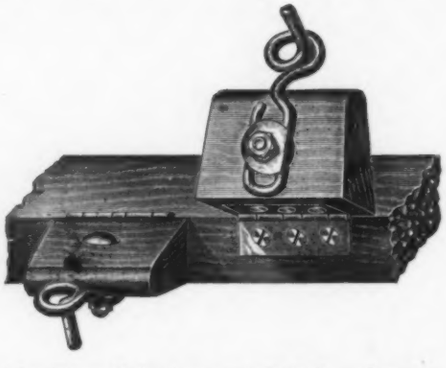

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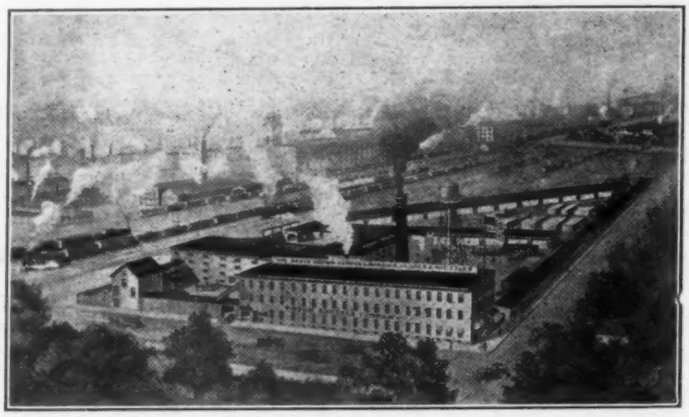

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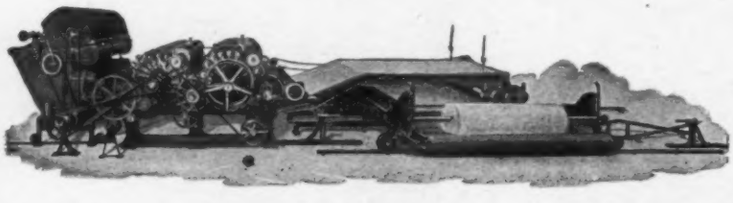

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for making batts or felts for mattresses or comfortables.

We build complete outfits of machinery for all kinds of felts.

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"Cotton Mill Machinery Calculations"

EVERY Textile Man should have these reference books. They cover in a detailed and thorough manner all calculations necessary to be made on any cotton mill machinery manufactured in the United States and constitute one of the best references on the subject obtainable.

The two volumes are illustrated with 45 diagrams and contain 21 reference tables.

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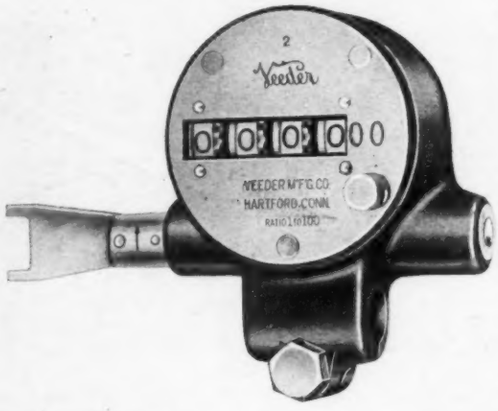
Make Machines Bear the Burden

Machines pay your profits and labor bills; machines will pay profits and *higher* bills if they're held to their best production-rate *more of the time.*

Now and then an operative may run his machine to capacity for a certain spell without a Veeder Counter, but he can't produce to the standard *hour in and hour out* unless your machines *do* provide

Veeder COUNTERS

The records of Veeder Counters show the output as the work is produced, so you can maintain a rate-of-work more in keeping with the *wage-rate.*



This is a much-reduced view of the new Loom Pick Counter, built larger than former models —more size to the figure-wheels, more legible readings—with the added endurance of a heavier number mechanism. Intended to be driven from the crankshaft, and registers the output in hundreds or thousands of picks, as ordered. Reads in plain figures; there's no mistaking the count; no disputes. *Textile Counter booklet describes this and other counters built exclusively for textile machinery.* Copy free.

The Veeder Mfg. Co.
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FACTS

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WHEN you purchase a scale, the first thing you demand is ACCURACY of course. But, most scales are accurate—*at first*—the thing to consider is how long do they remain accurate.

A scale not ruggedly built can't remain accurate throughout its life, for the rough usage and abuse will "knock the accuracy out of it."

"THE STANDARD" Scales are not only extremely rugged and strongly built, but their simplicity and few parts assure accuracy throughout their entire long life.

They are unqualifiedly correct in balance—and scores of mills vouch for their accuracy after years of use.

They are easily and quickly read, assuring quick weighing. Made in all sizes and capacities from small counter scales up to 150 and 200 ton railroad track scales.

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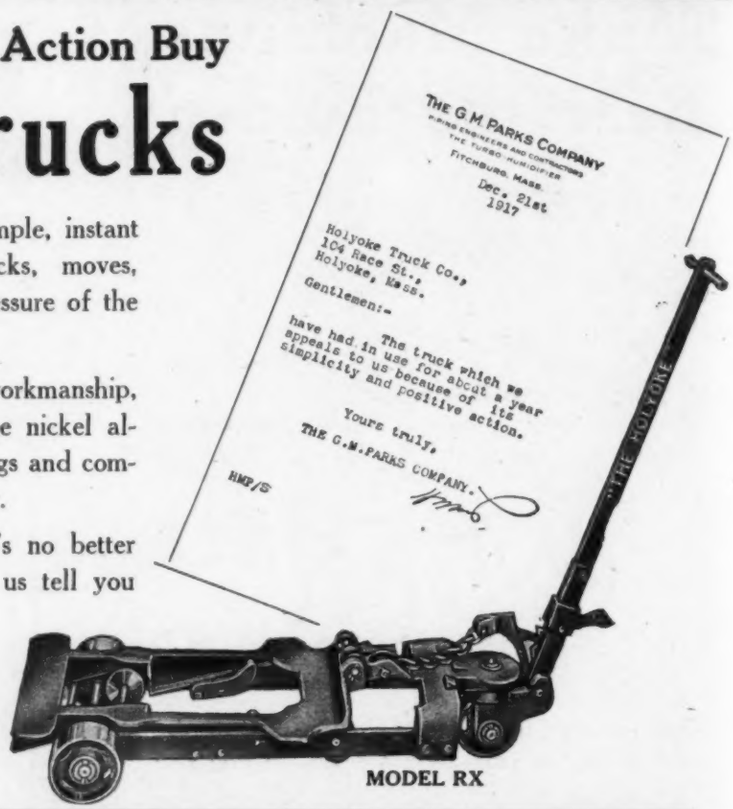
Holyoke Trucks

Control of Holyoke Transfer Trucks is simple, instant and positive. The operator elevates, locks, moves, steers, lowers and releases by motion or pressure of the handle.

Careful designing, best materials and workmanship, Hyatt Roller Bearings, heat treated chrome nickel alloy steel axles and total absence of all springs and complicated parts, insure strength and durability.

If it is trucking service you require, there's no better buy than Holyoke Transfer Trucks. Let us tell you more about them.



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119 RACE STREET HOLYOKE, MASS

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MILL RECEPTACLES

No Better Truck Made!

Standard Sizes:

32 x 18 x 18	42 x 24 x 28
36 x 24 x 24	48 x 30 x 30

Long life in spite of rough usage is proof of the rugged construction possessed by Leatheroid Trucks.

The bodies are made of Leatheroid, the highest development of fibre—a tough, smooth, long lasting material that will not dent or splinter.

The car illustrated here has steel-covered hard-wood top rim, steel bottom band eliminating all wood on wearing surfaces and the fibre body is covered on the outside with thin steel securely riveted to the fibre.

Self oiling wheels.

Write for catalog of Leatheroid Mill Receptacles, which includes

ROVING CANS TRUCKS DOFFING CARS
MILL BOXES BARRELS BASKETS, ETC.

Sold by Leading Textile Supply Houses of the South.

ROGERS FIBRE CO., (Leatheroid Sales Division)

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Nickel-Plated Drop Wires

—in any size or style at only—

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above the price for regular finish. Our dropwires are made of the best grade steel wire.

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N. B. We are the sole manufacturers of Nickel-Plated drop wires for every kind of loom.

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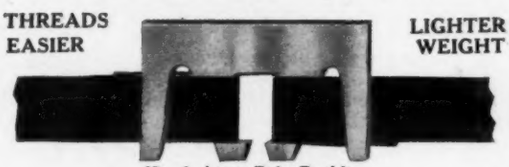
TAKES LESS TIME TO APPLY.

THREADS EASIER — LIGHTER WEIGHT



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BE SURE TO ORDER ACME COLD ROLLED BALING TIES. Smooth round edges, lacquered to prevent rust. Because of their light weight you get more to the pound.

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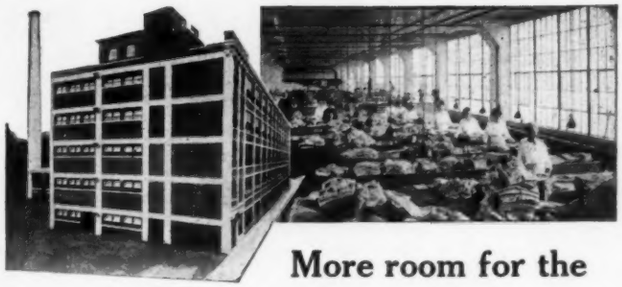

More room for the

Black Cat Textiles

THIS modern underwear mill for making Cooper-Bennington underwear was constructed to combine in one plant the manufacturing formerly distributed through a number of leased buildings.

The preliminary drawings involved very careful planning in cooperation with the owners. A complete study of requirements was made and many of the best underwear plants in the country were visited. The space required for each department was carefully worked out.

Construction was begun in June, 1917. In October, a part of the building was occupied. It was entirley completed and all moving accomplished during the following winter.

The new mill contains several original features, such as location of the washing and bleaching room on the fourth floor with ventilating stacks running through the fifth story to the roof.

As usual, the work of Lockwood, Greene & Co. was complete and included the planning and supervision of construction of a separate power house to furnish steam and hot water for manufacturing.

As an example of "Building with Foresight", we are glad to call your attention to this new plant of the Black Cat Textiles.

"BUILDING WITH FORESIGHT"

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Metal Equipment For Shop And Factory

OUR LINES:
Sanitary Wash Bowls (in Batteries), Bubbling Fountains (Plain and Ice Cooled), Metal Lockers, Metal Stock and Pattern Storage Racks, Metal Shelving, Metal Cabinets, Vault Fixtures, Soda Kettles (40 and 60 Gallons), Metal Stools and Chairs, Water Mixers, Work Benches, Bench Legs, Full Line of Plumbing Fixtures, Etc.

EQUIPMENT Will Help You to Keep Labor Contented and Permanent

It is just such equipment as this that helps you to keep employees' good-will—that solves the labor problem by making them stay with you.

Employees appreciate clean, cool drinking water—clean wash basins, good clothes lockers, sanitary toilets, and the like, and you could make no better investment at this time than to seriously consider the installation of one or more of the MECCO Employe-Keeping Equipment.

MEECO Ice Cooled Drinking Fountains are now being used in hundreds of mills, as well as MEECO Steel Lockers, Sanitary Toilets, Wash Bowls in Batteries, Steel Chairs, etc.

Do Not Delay—Get complete catalog of this valuable equipment.

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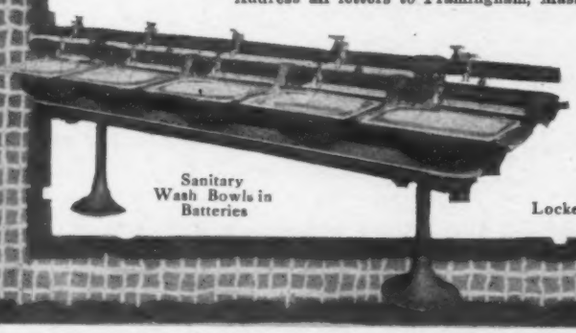
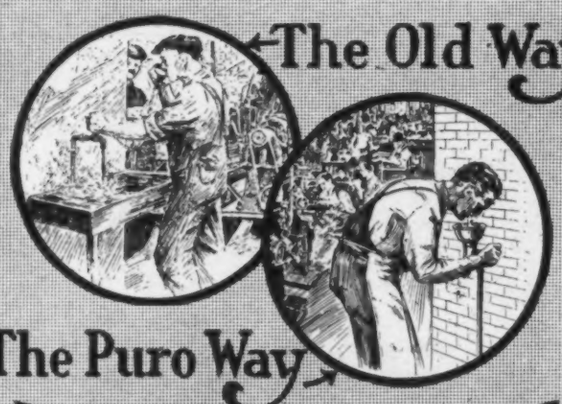

Sanitary Wash Bowls in Batteries

Lockers



The Road to Increased Production

lies to a great extent on the health and productiveness of your employees.

Eliminate the old rusty tin drinking cup—disease-breeding, water and time wasting practice.

PURO Sanitary Drinking Fountains guard against sickness, save their time, as there is no time wasted out of the room for drinks, and save water for obvious reasons. PURO is SANITARY—the only drinking fountain with a bowl that prevents lips touching bubbler.

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PURO Sanitary DRINKING Fountain
Registered Trade Mark

Your Summer Production Depends Upon Pure Water

Cool drinking water piped to your workmen will do much to relieve the oppressive heat—and insure increased activity—activity that will show favorably in your production.

R. & S. Fountains Built to Last and to Resist Rust

The barrel fountain shown here is ideal for factory service. The water passes through coil packed with ice, cooling quickly and insuring a constant supply. The whole construction is strong and rigid—made to stand up under the roughest service.

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Our complete line of fountains includes a type for every use. Installed throughout your plant they will do much toward increasing efficiency and speeding up production. We will mail complete information on request. Write for it now.

Rundle-Spence Mfg. Co.
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MILL AND FACTORY WHITES

on the walls and ceilings of your factories will

SAVE LIGHT

The Boy Strior

Finish Flat and Gloss Semi-Gloss, Made in

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WE are the originators and patentees of the Wave Slide, patent No. 1239848. All persons are warned against purchasing other slides violating our patent. Write for our illustrated catalogue.

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GO-CART WHEELS, STEEL AND RUBBER TIRE

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The necessity for complete hospital equipment in all textile plants is being more and more appreciated by far-sighted mill executives. So many instances have been noted where emergency equipment could have saved the time-loss of injured or sick employees, or would have even been the means of saving lives.

Therefore, complete and up-to-date hospital equipment is no longer considered merely a philanthropic proposition, but an investment that pays dividends—a necessity to the big textile mill family.

Thomas Hospital Equipment is probably the most complete and substantially constructed equipment that can be purchased—the most economical to buy because it's extremely efficient and it's made to last.

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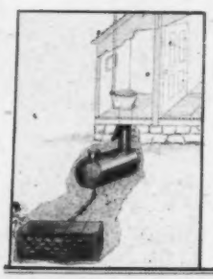
Health is the first consideration And health means contentment—and that means —greater loyalty.
Without modern toilet conveniences in the homes of your workmen, you are working against the odds of human nature and medical science.
"My district is unsewered"—is no longer an excuse.

Kaustine SYSTEM TOILETS

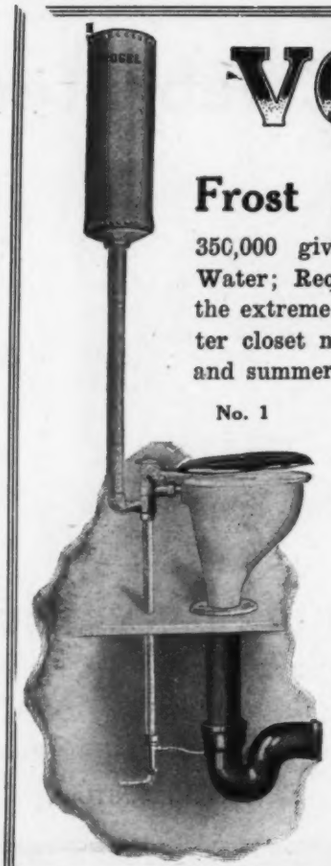
Require no Water nor Sewer Connections.

Based on principles advanced by health authorities. Dispose of sewage immediately after discharge from body. Chemical reaction insures sanitation. No baling, as with ordinary chemical closets. Sewage is flushed into receiving pool, by means of drain valve, after disinfection in Armco Iron tank. Kaustine tanks and all metal parts are constructed of Armco Iron and specially treated. Convenient-Healthful-Odorless. The Kaustine System gives your employes' families city conveniences. Easily installed. We can tell you how best to solve the problem in your locality. Write for this information and for the Kaustine catalog, which has revolutionized sanitation in mill and factory villages.



Kaustine Co., Inc., Buffalo, N. Y.

A. M. Whelpley, Sales Mgr., 423 Candler Bldg., Atlanta, Ga.



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350,000 giving satisfaction. Save Water; Require no Pit; Simple in the extreme. The most durable water closet made. In service winter and summer.

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Enameled roll flushing rim bowls.

Heavy brass valves.

Strong hardwood seat.. Galvanized tank.

Malleable seat castings will not break.

Tested under hydraulic pressure before leaving factory.

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Why Pay More Than For a Sanitary Closet $3.50

You can fly proof each one of your privies—prevent disease—guard against soil and water pollution, and increase the efficiency of your operatives for less than the cost of lard tub containers or boxes. You need no running water—no plumbing—no fixtures—no "expert" high priced labor to install the

STEVENS SANITARY CLOSET CAN

and it works continually and uninterruptedly from four to six years without expense for paint or repair of any kind.

THE STEVENS CAN IS AN ECONOMY IN YOUR MILL VILLAGE IF YOU WILL USE IT and IT alone—without screens, vaults, or special equipment or buildings. It is GUARANTEED FLY PROOF AND SANITARY.

Why tolerate expensive, cumbersome equipment—why worry over days and weeks of torn up, dismantled buildings—why pay more than $3.50 to make your surface closets as sanitary—as fly proof—as efficient as they can be made—by any method—or any device—under any name—at any price!

THE STEVENS CAN is quickly installed and easy of access for cleaning. It will not absorb odors—go to staves—rot—burst from freezing or clog. Rain can't spatter contents and pollute soil or water. It is the solution to your surface closet problem. Then why not buy it TODAY—or if you doubt these facts give a few of the Cans a trial till you can see how they work.

A postal will bring proofs of our statements, or a trial shipment of Stevens Cans. Write today.

THE SELIG CO., Manufacturers

THE SELIG COMPANY OF TEXAS
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The Most Sanitary System of Sewerage Disposal

THE day of the scavenger in industrial villages is passing. In place of former insanitary, disease-spreading methods hundreds of villages are now equipped with the "Sanisep" System.

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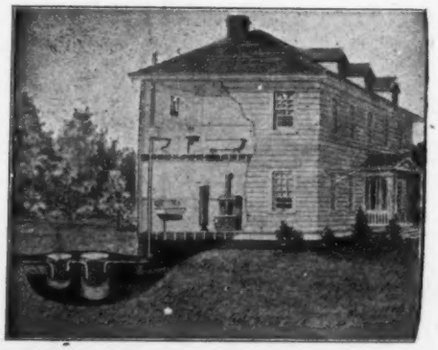

This system disposes of every particle of the sewage; no scavenger is required. There are no chemicals used, the soil is not polluted and no disagreeable odors are given off.

The output of your mill will soon show the effects of healthier, happier operatives. Let your first move be the installation of a "Sanisep" System.

Write for further information and prices.

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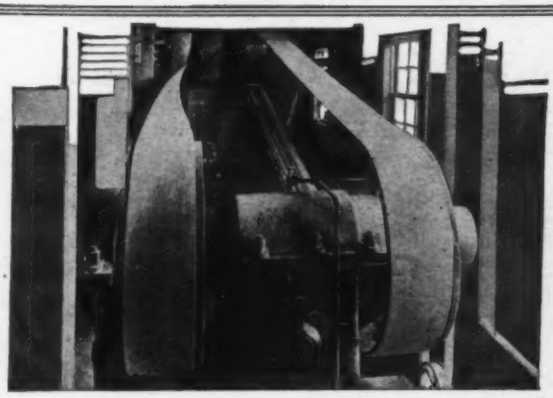

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2—Keeps the glaring light rays out of the workman's eyes; concentrates the light on the place or work to be illuminated.

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are made of expanded steel, well-coated with tin. Easy to adjust. Made in sizes to protect up to and including 60 Watt Mazda and 75 Watt, Type C, Nitrogen lamps.

Write today for prices and full information.

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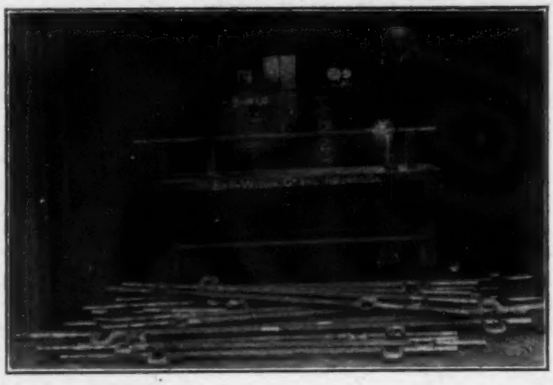

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Make 237 that we have welded for one mill during the past year.

Experience shows that a properly welded crank shaft will outlive on an average two new crank shafts.

We charge the mill $1.45 each for welding these crank shafts—and make a good profit. The average cost of a new crankshaft is $4.00.

The saving to the mill on each crank shaft is $2.55, making a total of $604.35 actually saved on this item in one year.

Why not prepare NOW for those inevitable breaks that are bound to occur in your mill. Why not affect such savings as this in your mill by installing a

B-W Welding and Cutting Machine.

We not only supply the machine, oxygen and supplies, but we send experts to your plant to teach your mechanic how to use it.

B-W SERVICE

means that if you have a breakdown too large for your own mechanic, our experts are always ready to come to you.

Write today for catalog and price list.

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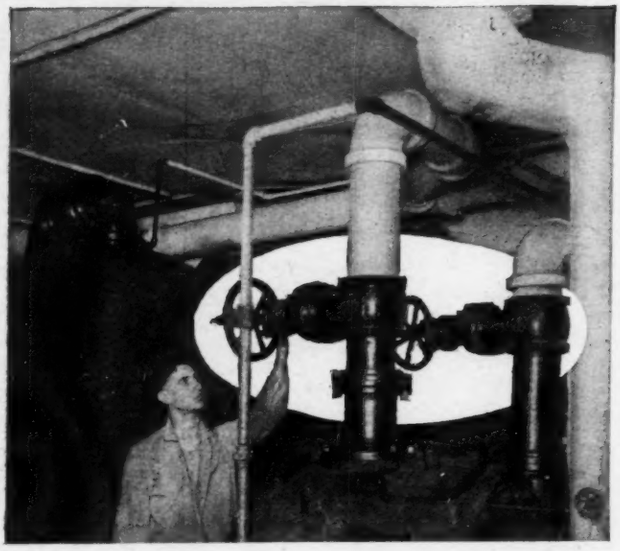
Jenkins Valves



"Yes, I'm using 6" Jenkins Gate Valves on an air line with a 10" to 28" suction"

said a prominent engineer when asked about some of the Jenkins iron body gate valves he has installed.

This is exceptional service for a gate valve and proved the superior design and construction inherent in Jenkins Valves.

When shut the valve is *tight*. The gate or wedge is faced with hard bronze rings and has grooves which slide smoothly on ribs in the body and prevents uneven wear of the faces or chattering when the valve is partly opened.

Jenkins Iron Body Gate Valves are made in standard medium and extra heavy patterns in all required sizes for steam and water service.

You'll know a Genuine Jenkins Valve by the Jenkins "Diamond Mark"—look for it—demand it.

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Special Textile Lubricants

YOU save cotton when you lubricate textile machinery with NON-FLUID OIL because it does away with oil stains—NON-FLUID OIL positively will not drip nor spatter. This means increased production.

You save in labor when you use NON-FLUID OIL because it lasts longer in bearings and cuts down the number of trips with the oil can—no mean item in a textile mill.

Other advantages of NON-FLUID OIL are told in the book "Lubrication of Textile Machinery." Send for your copy today, also free testing samples.

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POWER TRANSMITTING MACHINERY

Merit Plus Recognition

"The heights by great men reached and kept were not attained by sudden flight."

Time, skill and effort must also proceed merit as surely in machinery as in men.

Time, skill and effort must also proceed merit in order to obtain and maintain for merit the recognition it deserves.

The great number of large installations of Cresson-Morris Power Transmitting Machinery is proof of both the merit and the recognition of the merit that nearly three score years of skill and effort have endowed it with.

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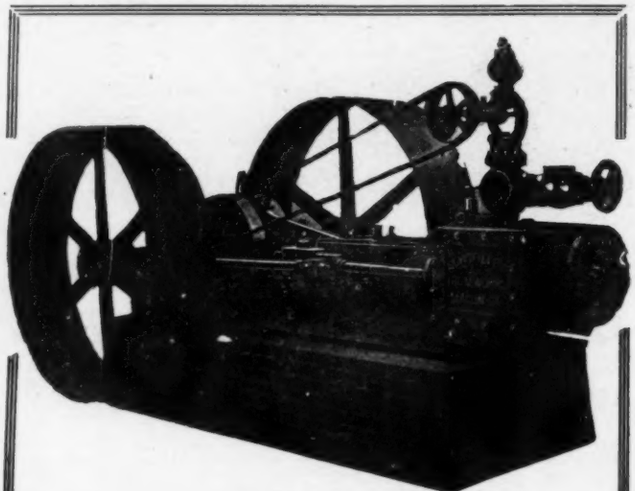

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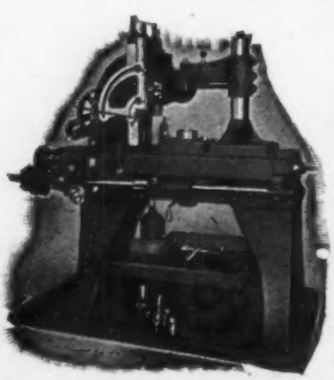
High Pressure Return Tubular Boilers, High Grade Stationary Steam Engines, Tanks, Stacks, Stand Pipes.

Heavy Castings and Wrought Iron Works.



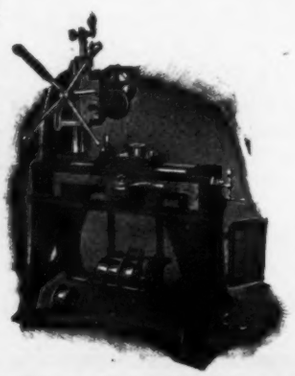
Full Automatic, Semi-Automatic and Hand Operated

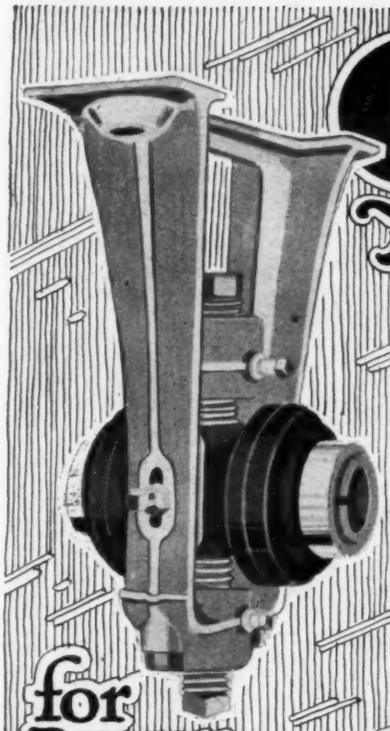
Gear Cutting Machines

Especially adapted for use in Cotton Mills Hundreds now in use. Send for Special Circulars.

The D. E. Whiton Machine Co.,

NEW LONDON, CONN.





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for Power Transmission

You Pay for Chapman Type Ball Bearings
Why Not Get Them?

If you are using babbitted bearings in your power transmission machinery, the power being lost through friction by these bearings would in two years' time pay for an installation of **Chapman Type Ball Bearings.**

Chapman Type Ball Bearings will fit your present hangers. There is no expense or delay in getting new ones. As these bearings lock onto the shaft by the compression of sleeve wedges, there is no possible chance for shaft cutting or wear, as there is no moving part in contact with the shaft.

Chapman Type Ball Bearings have been on the market for 16 years. During this time they have been adopted as standard equipment by nearly 4000 plants. Isn't this a strong recommendation in their favor?

The services of our engineers are at your disposal any time, to assist you in your transmission machinery problems.

Have you a copy of Catalogue 3 M? Better get one if you haven't

TRANSMISSION BALL BEARING CO., Inc.
1050 Military Road, Buffalo, N. Y.
New York, Philadelphia, Cleveland, Chicago, Greenville, S. C., Cambridge, Mass.
The Chapman Double Ball Bearing Co.,
339-351 Sorauren Ave., Toronto, Ont.

STANLEY BELTING
SOLID WOVEN COTTON
MADE IN SCOTLAND

—the mill "cost man" knows a cut in overhead is a doub'e profit—

Stanley Solid-Woven Cotton Belting

will help any mill "put a crimp" in the overhead. With the item "belts" looming large in the "annual purchase" column the saving in first cost represented by Stanley runs into big figures.

Being specially adapted by its solid weave and waterproof treatment to withstand the effects of service in dye house and bleachery, it is longer before Stanley gets into the "expended" list.

Since Stanley practically eliminates stretch after the first 36 hours, no adjustments are required, thereby reducing the lost time of employees and cutting down the figures in red ink.

The extreme flexibility of Stanley gives it a longer arc of contact on the pulley, reducing slippage and saving power, which means saving on the coal bill.

One textile mill writes as follows about its experience with Stanley: **"Your belting has proved very satisfactory. We find its wearing qualities are so much greater than any other we have ever used that we still have quite a supply on hand."** Stanley is not a new belt. It has been tried and proven by 36 years of service around the world. Write for more complete information as to how Stanley can cut the costs in your mill.

STANLEY BELTING CORPORATION, 36 S. CLINTON ST., CHICAGO, ILLINOIS

The 20th Century Steam Drainage AND Boiler Feed

LEADERS IN THE TEXTILE industry—executives who figure costs down to the last cent—are using the Morehead "Back-to-Boiler" System to make condensation pay a profit.

You cannot eliminate condensation but you can return it immediately to your boilers as pure hot feed water—reducing the cost of your fuel from 15% to 25%.

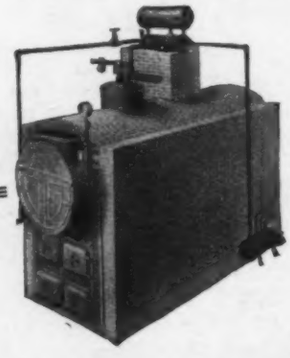
The

Morehead
Back to Boiler
SYSTEM

is comprised of a line of steam traps adapted to every textile mill condition which can arise.

But the Morehead System does more than save a large part of your fuel bill—it eliminates sluggish circulation in your steam lines and keeps your machines operating at their highest possible thermal efficiency.

Morehead Manufacturing Co.
Cotton Mill Dept.,
DETROIT, MICHIGAN.



with minimum up-keep are virtues of Lunkenheimer "Renewo" Valves.

The SEATRING and DISC,—the parts subjected to the most wear—are made of Lunkenheimer "Valve Nickel", a material which gives exceptional results in service; the seating surfaces are regrindable, and all parts including the seatring and disc are renewable.

Take advantage of these features, peculiar to the "Renewo," and repair or replace a worn or broken part rather than discard the entire valve.

Write for booklet 535 AK

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"QUALITY"
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covers all indicating, recording and controlling instruments made by this company and is a synonym for standard apparatus---precision, reliability and permanence.

We invite, from all interested industrial managers, correspondence relating to our instruments and their uses.

Our stock models cover every usual industrial requirement, with very moderate outlay.

Taylor Instrument Companies

Rochester, N. Y.

There's a *Tycos* or *Taylor* Thermometer for Every Purpose

One Operation

handles ashes from boiler plant to tank outside.

THE rising cost of labor makes it eminently desirable to use labor saving equipment whenever possible. Ash Handling is non-productive work and should be avoided manually.

AMERICAN STEAM CONVEYORS

eliminate ash wheelers, reduce boiler plant labor overhead, aid in keeping the boiler plant clean.

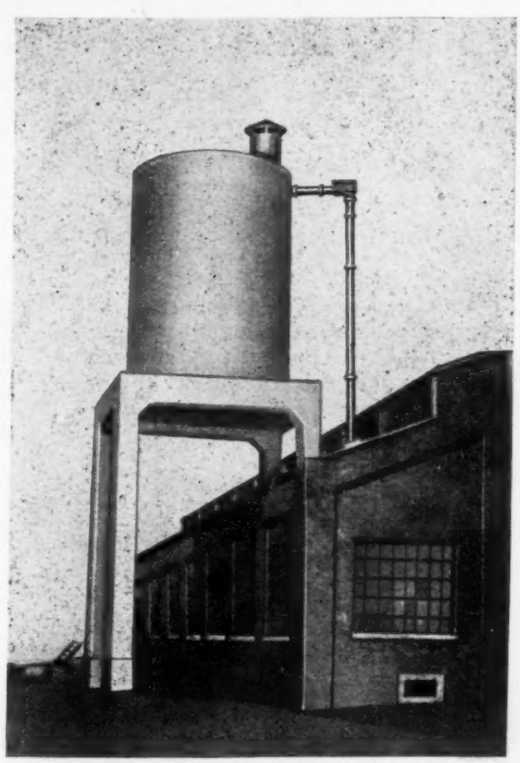
One operation handles the ashes—shoots them from the boiler plant to the bin outside.

Write for catalogue K which describes this low priced, labor-saving ash conveyor. No obligation—free on request.

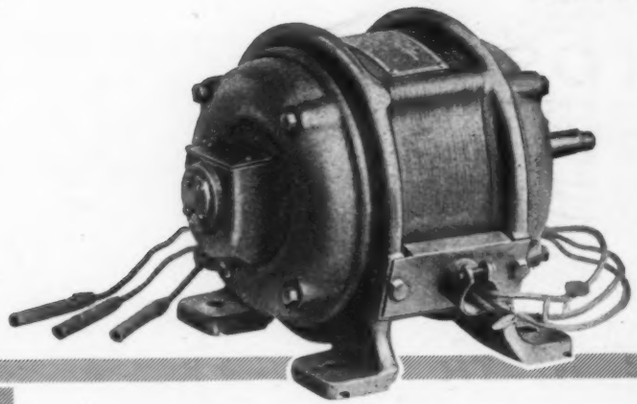
American Steam Conveyor Corporation

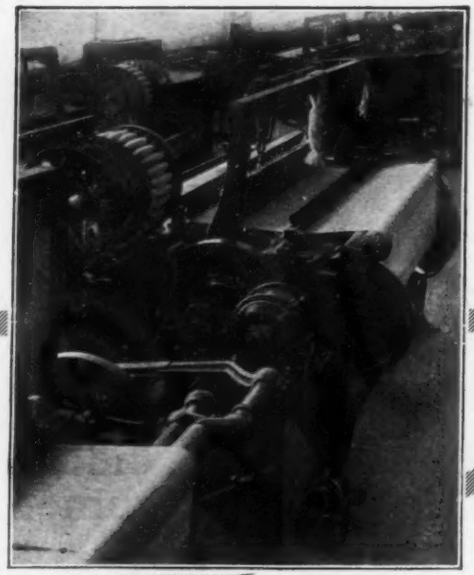
Ash Disposal Engineers.

CHICAGO: - 326 West Madison Street
NEW YORK: - 110 West 40th Street



Note the ash tank into which the American Steam Ash Conveyor discharges the ashes from this boiler plant. Fully described in catalogue K.





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**Totally Enclosed—Waste Packed Bearings—
Arranged for Conduit Connections—
High Efficiency.**

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Milwaukee. Wis. U.S.A.

Announcement

Mr. F. A. Seeger announces the formation of the Seeger Machine Tool Company, and the severance of his former connections.

The new Company will handle the same well known lines of Machine Tools which Mr. Seeger has represented in this territory for the past six years.

Our large stock in Atlanta and direct connections with the manufacturers enable us to fill your orders for machine shop equipment and supplies even more promptly than heretofore.

Cincinnati Milling Machines
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Lodge & Shipley Lathes
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Cincinnati Planers
Baker Brothers Keuscaters
Acme Turret Lathes
Gisholt Turret Lathes and Boring Mills
Landis Bolt and Pipe Machines
Houston-Stanwood & Gamble Heavy Duty Lathes
Whiting Foundry Equipment

Complete stock shop tools and supplies

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34 South Forsyth St., Atlanta, Georgia.

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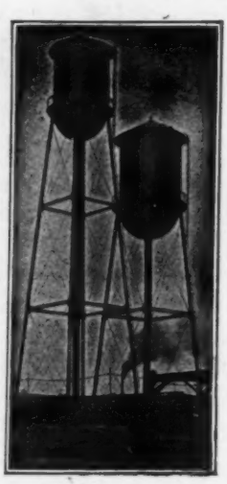
That are Built Right



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Tell us what you want and let us quote prices.

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Save Your Burnt-Out Fuse Cases

They are valuable to you because it's an expensive proposition to be buying new fuses and it's also an expensive proposition to spend five or ten minutes refilling fuses every time one blows. Such time loss may not look big individually, but consider what the collective loss is at the end of the year.

You want fuses that are always ready, that can be put in instantly.

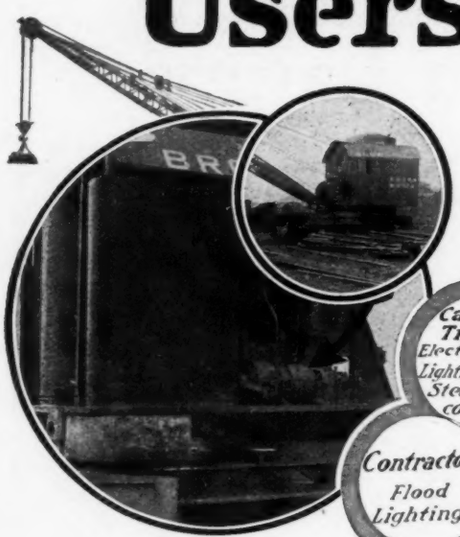
Therefore, why not send us your old burnt-out fuse cases and we will refill them at so small a cost it will surprise you—and these refilled fuses are guaranteed to equal the new Class A fuse in every respect.

You save money, you save time, you save labor—so save your old burnt-out fuses and send them to us.

Booklet sent gladly on request.

E. W. Snow & Co., Rochester, N. Y.

Users—



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—So designed that the replacement of a part can readily be made in the field.
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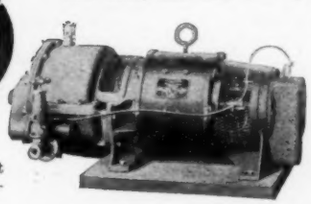

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Westinghouse Electric & Mfg Co.
EAST PITTSBURGH, PA.

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Wire or phone your orders and note the quick service at this end of the line.

CARTER ELECTRIC CO., **63 Peachtree, Atlanta**

Renewed Tungsten Lamps

Ten to Forty Watt
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Send for Particulars

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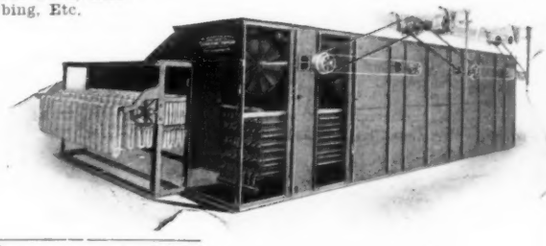

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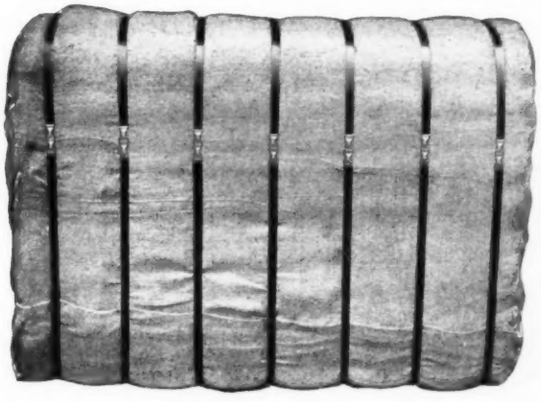

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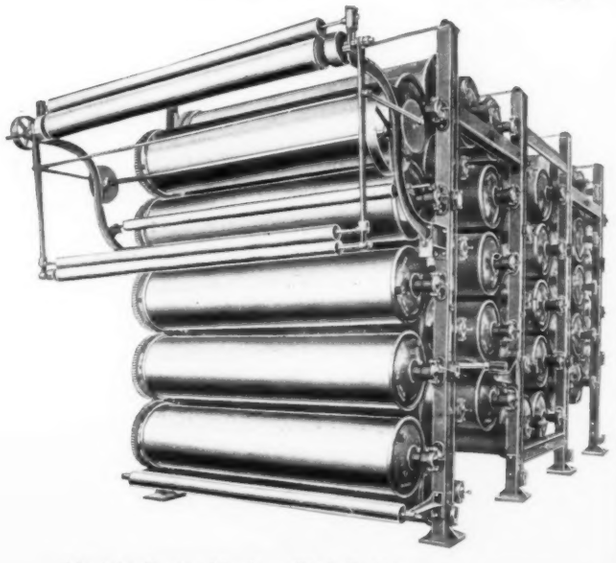

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